



STIC Search Report

EIC 1700

STIC Database Tracking Number: 214289

TO: Ben Sackey

Location: *Remsen SB31*

Art Unit : 1624

February 20, 2007

Case Serial Number: 10/805983

From: Kathleen Fuller

Location: EIC 1700

REMSEN 4B28

Phone: 571/272-2505

Kathleen.Fuller@uspto.gov

Search Notes



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- I am an examiner in Workgroup: Example: 1713
➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

Scientific and Technical Information Center

SEARCH REQUEST FORM

Requester's Full Name: BEN SACKY Examiner #: 73489 Date: 01/25/07
Art Unit: 1624 Phone Number: 2-0704 Serial Number: 10/805 983
Location (Bldg/Room#) Rem 563 (Mailbox #): _____ Results Format Preferred (circle) PAPER DISK

To ensure an efficient and quality search, please attach a copy of the cover sheet, claims, and abstract or fill out the following:

Title of Invention: Converting propylene in an oxygenated-contaminated propylene stream etc
Inventors (please provide full names): Smith et al.

SCIENTIFIC REFERENCE
Sci & Tech Inf

Earliest Priority Date: _____

JAN 30 k.

Search Topic:

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter. ^{Pat & TM} ~~Include the~~ ^{covered.} Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known.

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

A process for reacting an oxygenate (e.g. methanol, ethanol, etc as shown in claim 2) with propylene in a reactor to obtain one of acrolein, acrylic acid, acrylonitrile, acetone, isopropanol, cumene, etc.

Claims 1-11 only

Thanks

=> FILE REG

FILE ~~'REGISTRY'~~ ENTERED AT 11:11:35 ON 20 FEB 2007
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STRUCTURE FILE UPDATES: 19 FEB 2007 HIGHEST RN 921921-74-6
DICTIONARY FILE UPDATES: 19 FEB 2007 HIGHEST RN 921921-74-6

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TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

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<http://www.cas.org/ONLINE/UG/regprops.html>

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FILE COVERS 1907 - 20 Feb 2007 VOL 146 ISS 9
FILE LAST UPDATED: 19 Feb 2007 (20070219/ED)

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This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> D QUE

L2	12 SEA FILE=REGISTRY ABB=ON (104-76-7/BI OR 107-02-8/BI OR 107-13-1/BI OR 11104-44-2/BI OR 115-07-1/BI OR 123-72-8/BI OR 67-63-0/BI OR 67-64-1/BI OR 75-56-9/BI OR 78-84-2/BI OR 79-10-7/BI OR 98-82-8/BI)
L4	1 SEA FILE=REGISTRY ABB=ON 115-07-1
L5	9 SEA FILE=REGISTRY ABB=ON L2 AND O/ELS
L6	1 SEA FILE=REGISTRY ABB=ON 107-13-1
L7	1 SEA FILE=REGISTRY ABB=ON 98-82-8

L8 8 SEA FILE=REGISTRY ABB=ON L5 NOT BI/ELS
 L9 10 SEA FILE=REGISTRY ABB=ON L6 OR L7 OR L8
 L11 243293 SEA FILE=HCAPLUS ABB=ON L9
 L12 30989 SEA FILE=HCAPLUS ABB=ON L11(L) PREP/RL
 L15 17822 SEA FILE=HCAPLUS ABB=ON L4(L) RACT/RL
 L16 5020 SEA FILE=HCAPLUS ABB=ON L12 AND L15
 L21 358 SEA FILE=HCAPLUS ABB=ON (PROPYLENE OR 1(W) PROPENE) (4A)?STREAM?

 L25 30 SEA FILE=HCAPLUS ABB=ON L15(L) OXYGENA?
 L26 4270 SEA FILE=HCAPLUS ABB=ON L16 AND (CAT/RL OR CATALYST?)
 L27 5 SEA FILE=HCAPLUS ABB=ON L26 AND L25
 L28 49 SEA FILE=HCAPLUS ABB=ON L26 AND L21
 L30 4 SEA FILE=HCAPLUS ABB=ON L28 AND OXYGENA?
 L31 53 SEA FILE=HCAPLUS ABB=ON L27 OR L28 OR L30

=> D L31 BIB ABS IND HITSTR 1-53

L31 ANSWER 1 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2005:1231176 HCAPLUS
 DN 143:479711
 TI Hydration and etherification process for processing propylene-containing hydrocarbon mixtures into isopropanol and diisopropyl ether
 IN Pavlov, O. S.; Pavlov, D. S.
 PA Obshchestvo Ogranichennoi Otvetstvennost'yu "Nauchno-Tekhnologicheskii Tsentr Khimicheskimi Tekhnologiyam", Russia
 SO Russ., 19 pp.
 CODEN: RUXXE7
 DT Patent
 LA Russian

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	RU 2264379	C1	20051120	RU 2004-122057	20040721
PRAI	RU 2004-122057		20040721		

AB A method for processing propylene-containing hydrocarbon mixts. into iso-Pr alc. and/or diisopropyl ether or their mixts. comprises: (i) a liquid-phase hydration of propylene in one or several reaction zones at elevated temps. in the presence of a strong-acid catalyst and solvent [e.g., primary alkyl alc.(s)] under reduced pressure in the reaction zone(s); (ii) subsequent rectification-mediated isolation of the desired product(s) from the reaction mixture; and (iii) recycling the solvent to the reaction zone(s) inlet. Concentration of the alc.(s) in the solvent is maintained high enough to dissolve all or most of the water fed into the hydration process in a common liquid stream of solvent and propylene -containing mixture at a temperature existing in the reaction zone(s) inlet;

process

flow diagrams are presented.

IC ICM C07C043-04

ICS C07C041-06; C07C002-28

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 23, 48

ST propylene hydration isopropanol manuf; propene hydration isopropanol manuf; diisopropyl ether manuf propylene hydration etherification

IT Alcohols, processes

RL: EPR (Engineering process); NUU (Other use, unclassified); PEP

(Physical, engineering or chemical process); PROC (Process); USES (Uses)

(aliphatic, solvents; hydration and etherification process for processing propylene-containing hydrocarbon mixts. into isopropanol and diisopropyl ether)

IT Etherification
Hydration, chemical
(hydration and etherification process for processing propylene-containing hydrocarbon mixts. into isopropanol and diisopropyl ether)

IT Etherification catalysts
Hydration catalysts
(strong acids; hydration and etherification process for processing propylene-containing hydrocarbon mixts. into isopropanol and diisopropyl ether)

IT Acids, processes
RL: CAT (Catalyst use); EPR (Engineering process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(strong, catalysts; hydration and etherification process for processing propylene-containing hydrocarbon mixts. into isopropanol and diisopropyl ether)

IT 7732-18-5P, Water, preparation
RL: BYP (Byproduct); EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(hydration and etherification process for processing propylene-containing hydrocarbon mixts. into isopropanol and diisopropyl ether)

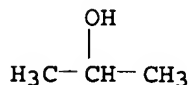
IT 108-20-3P, Diisopropyl ether
RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
(hydration and etherification process for processing propylene-containing hydrocarbon mixts. into isopropanol and diisopropyl ether)

IT 67-63-0P, Isopropanol, preparation
RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); RCT (Reactant); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(hydration and etherification process for processing propylene-containing hydrocarbon mixts. into isopropanol and diisopropyl ether)

IT 115-07-1, Propylene, reactions
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(hydration and etherification process for processing propylene-containing hydrocarbon mixts. into isopropanol and diisopropyl ether)

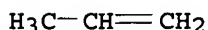
IT 67-63-0P, Isopropanol, preparation
RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); RCT (Reactant); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(hydration and etherification process for processing propylene-containing hydrocarbon mixts. into isopropanol and diisopropyl ether)

RN 67-63-0 HCAPLUS
CN 2-Propanol (9CI) (CA INDEX NAME)



IT 115-07-1, Propylene, reactions
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(hydration and etherification process for processing propylene-containing hydrocarbon mixts. into isopropanol and diisopropyl ether)

RN 115-07-1 HCAPLUS
 CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 2 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:1026643 HCAPLUS

DN 143:326767

TI Converting propylene in an **oxygenate**-contaminated
propylene stream to non-polymerization derivative
 products

IN Shutt, John Richard; Brinen, Jeffrey L.

PA Belg.

SO U.S. Pat. Appl. Publ., 22 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005209469	A1	20050922	US 2004-805983	20040322
	WO 2005095547	A1	20051013	WO 2005-EP946	20050128
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
WO	2005095315	A2	20051013	WO 2005-EP948	20050128
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EP	1733003	A1	20061220	EP 2005-707100	20050128
R:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR				
EP	1732871	A2	20061220	EP 2005-715233	20050128
R:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, LV, MK, YU				
WO	2005093010	A2	20051006	WO 2005-US8334	20050314
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,				

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SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,
RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
MR, NE, SN, TD, TG

PRAI US 2004-805983 A 20040322
WO 2005-EP946 W 20050128
WO 2005-EP948 W 20050128

AB The invention provides for directing an **oxygenate**-contaminated
propylene-containing **stream** derived from an
oxygenate to olefin reaction system to a derivative non-polymerization
reactor for conversion of the propylene to one or more derivative
non-polymerization

products. Exemplary derivative non-polymerization propylene conversion
processes

include: oxidation to form acrolein, oxidation to form acrylic acid, ammoxidn.
to form acrylonitrile, liquid phase oxidation to form acetone, liquid phase
hydration to form isopropanol, hydroformylation to form n-butyraldehyde
and its subsequent aldol/hydrogenation to form 2-ethylhexanol, direct or
indirect oxidation to form propylene oxide, alkylation to form cumene in the
presence of phosphoric acid/Kieselguhr or a zeolite and the subsequent
selective hydroperoxidn. of cumene to form acetone and phenol.

IC ICM C07D301-03

ICS C07C051-16; C07C047-546

INCL 549523000; 558319000; 562545000; 568476000; 568440000

CC 35-2 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 45, 51

ST propylene **oxygenate** conversion olefin molybdenum bismuth oxide
catalyst

IT Petroleum refining **catalysts**

(conversion; converting propylene in an **oxygenate**
-contaminated **propylene stream** to non-polymerization
derivative products over complex oxide **catalyst**)

IT Alkenes, preparation

RL: EPR (Engineering process); IMF (Industrial manufacture); PEP
(Physical, engineering or chemical process); PREP (Preparation); PROC
(Process)

(converting propylene in an **oxygenate**-contaminated
propylene stream to non-polymerization derivative products over
complex oxide **catalyst**)

IT Alcohols, reactions

RL: EPR (Engineering process); PEP (Physical, engineering or chemical
process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(converting propylene in an **oxygenate**-contaminated
propylene stream to non-polymerization derivative products over
complex oxide **catalyst**)

IT Monomers

RL: IMF (Industrial manufacture); PREP (Preparation)

(converting propylene in an **oxygenate**-contaminated
propylene stream to non-polymerization derivative products over
complex oxide **catalyst**)

IT Solvents

(organic; converting propylene in an **oxygenate**-contaminated
propylene stream to non-polymerization derivative products over
complex oxide **catalyst**)

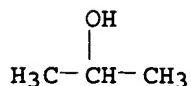
IT Hydrocarbons, reactions

RL: EPR (Engineering process); PEP (Physical, engineering or chemical
process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

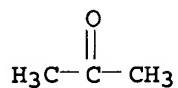
- (oxy; converting propylene in an **oxygenate**-contaminated **propylene stream** to non-polymerization derivative products over complex oxide **catalyst**)
- IT 11104-44-2, Bismuth molybdenum oxide
 RL: CAT (Catalyst use); USES (Uses)
 (converting propylene in an **oxygenate**-contaminated **propylene stream** to non-polymerization derivative products over complex oxide **catalyst**)
- IT 115-07-1, Propylene, reactions
 RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); **RACT (Reactant or reagent)**
 (converting propylene in an **oxygenate**-contaminated **propylene stream** to non-polymerization derivative products over complex oxide **catalyst**)
- IT 67-63-0P, Isopropanol, preparation 67-64-1P, Acetone, preparation 75-56-9P, Propylene oxide, preparation 78-84-2P, Iso-butyraldehyde 79-10-7P, Acrylic acid, preparation 98-82-8P, Cumene 104-76-7P, 2-Ethylhexanol 107-02-8P, Acrolein, preparation 107-13-1P, Acrylonitrile, preparation 123-72-8P, n-Butyraldehyde
 RL: IMF (Industrial manufacture); **PREP (Preparation)**
 (converting propylene in an **oxygenate**-contaminated **propylene stream** to non-polymerization derivative products over complex oxide **catalyst**)
- IT 115-07-1, Propylene, reactions
 RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); **RACT (Reactant or reagent)**
 (converting propylene in an **oxygenate**-contaminated **propylene stream** to non-polymerization derivative products over complex oxide **catalyst**)
- RN 115-07-1 HCAPLUS
 CN 1-Propene (9CI) (CA INDEX NAME)



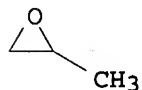
- IT 67-63-0P, Isopropanol, preparation 67-64-1P, Acetone, preparation 75-56-9P, Propylene oxide, preparation 78-84-2P, Iso-butyraldehyde 79-10-7P, Acrylic acid, preparation 98-82-8P, Cumene 104-76-7P, 2-Ethylhexanol 107-02-8P, Acrolein, preparation 107-13-1P, Acrylonitrile, preparation 123-72-8P, n-Butyraldehyde
 RL: IMF (Industrial manufacture); **PREP (Preparation)**
 (converting propylene in an **oxygenate**-contaminated **propylene stream** to non-polymerization derivative products over complex oxide **catalyst**)
- RN 67-63-0 HCAPLUS
 CN 2-Propanol (9CI) (CA INDEX NAME)



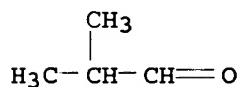
- RN 67-64-1 HCAPLUS
 CN 2-Propanone (CA INDEX NAME)



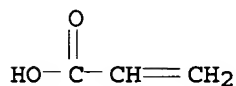
RN 75-56-9 HCAPLUS
CN Oxirane, 2-methyl- (CA INDEX NAME)



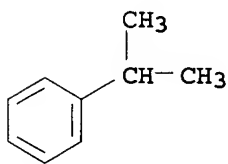
RN 78-84-2 HCAPLUS
CN Propanal, 2-methyl- (9CI) (CA INDEX NAME)



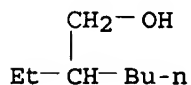
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (9CI) (CA INDEX NAME)



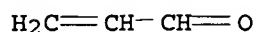
RN 98-82-8 HCAPLUS
CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



RN 104-76-7 HCAPLUS
CN 1-Hexanol, 2-ethyl- (8CI, 9CI) (CA INDEX NAME)



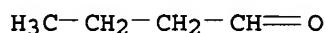
RN 107-02-8 HCAPLUS
CN 2-Propenal (9CI) (CA INDEX NAME)



RN 107-13-1 HCAPLUS
CN 2-Propenenitrile (9CI) (CA INDEX NAME)



RN 123-72-8 HCAPLUS
CN Butanal (9CI) (CA INDEX NAME)



L31 ANSWER 3 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2005:692275 HCAPLUS
DN 143:193725
TI Preparation of nitriles by ammoxidation of organic compounds using metal
catalysts
IN Miyaki, Kenichi; Watanabe, Seigo; Yamaguchi, Masanori; Watanabe, Hirokazu
PA Dia-Nitrix Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF

DT Patent
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005206472	A	20050804	JP 2004-11876	20040120
PRAI	JP 2004-11876		20040120		

OS CASREACT 143:193725

AB Nitriles are prepared by ammoxidn. of organic compds. in the presence of
catalysts containing (1) Mo, (2) Bi, (3) Fe, and (4) ≥ 1
selected from Ni, Co, Zn, Mg, Mn, and Cu while adding Mo-containing powders in
which rate of 45-600 μm -diameter particles is $\geq 85\%$. Thus, a
gaseous mixture of **propylene**, NH_3 , air, and **stream** was
passed through a column packed with $\text{Mo}_{10}\text{Bi}_{0.6}\text{Fe}_{1.3}\text{Ni}_{5.5}\text{Co}_{0.5}\text{Mn}_{0.1}\text{Ce}_{0.3}\text{Nd}_{0.2}\text{K}_{0.2}\text{Li}_{0.05}\text{Cr}_{0.7}\text{P}_{0.2}\text{O}_{0.05}\text{W}_{0.1}\text{Te}_{0.05}\text{Ox}(\text{SiO}_2)_{40}$ (preparation given) while adding
 MoO_3 (rate of 45-600 μm -diameter particles 98%) at 440° and 200 kPa
to give 83.0% acrylonitrile after 50 h and 82.5% acrylonitrile after 1000
h.

IC ICM C07C253-24

ICS B01J023-94; B01J027-28; B01J027-30; B01J038-00; C07C255-08;
C07B061-00

CC 23-19 (Aliphatic Compounds)

ST molybdenum bismuth iron nickel **catalyst** org compd ammoxidn;
propylene catalytic ammoxidn acrylonitrile molybdenum trioxide particle
size control; nitrile prepn molybdenum trioxide particle size control

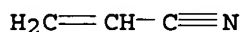
IT Ammoxidation **catalysts**

(preparation of nitriles by ammoxidn. of organic compds. using metal
catalysts containing Mo, Bi, Fe, and Ni, etc., while adding
size-controlled powders of Mo compds.)

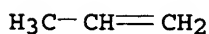
IT Nitriles, preparation

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
(Preparation)

- (preparation of nitriles by ammoxidn. of organic compds. using metal catalysts containing Mo, Bi, Fe, and Ni, etc., while adding size-controlled powders of Mo compds.)
- IT 1313-27-5, Molybdenum trioxide, uses 7439-98-7D, Molybdenum, compds. 12027-67-7, Ammonium paramolybdate
RL: CAT (Catalyst use); USES (Uses)
(preparation of nitriles by ammoxidn. of organic compds. using metal catalysts containing Mo, Bi, Fe, and Ni, etc., while adding size-controlled powders of Mo compds.)
- IT 861841-05-6P 861841-06-7P 861841-08-9P
RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(preparation of nitriles by ammoxidn. of organic compds. using metal catalysts containing Mo, Bi, Fe, and Ni, etc., while adding size-controlled powders of Mo compds.)
- IT 107-13-1P, Acrylonitrile, preparation
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of nitriles by ammoxidn. of organic compds. using metal catalysts containing Mo, Bi, Fe, and Ni, etc., while adding size-controlled powders of Mo compds.)
- IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of nitriles by ammoxidn. of organic compds. using metal catalysts containing Mo, Bi, Fe, and Ni, etc., while adding size-controlled powders of Mo compds.)
- IT 107-13-1P, Acrylonitrile, preparation
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of nitriles by ammoxidn. of organic compds. using metal catalysts containing Mo, Bi, Fe, and Ni, etc., while adding size-controlled powders of Mo compds.)
- RN 107-13-1 HCAPLUS
CN 2-Propenenitrile (9CI) (CA INDEX NAME)



- IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of nitriles by ammoxidn. of organic compds. using metal catalysts containing Mo, Bi, Fe, and Ni, etc., while adding size-controlled powders of Mo compds.)
- RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



- L31 ANSWER 4 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2005:409279 HCAPLUS
DN 142:447530
TI Metalloaluminophosphate zeolite catalyst pretreatment with C2-4 aldehydes in an oxygenate-into-olefins reaction system
IN Xu, Teng; Coute, Nicolas P.; Clem, Kenneth Ray; Van Egmond, Cornelis F.
PA Exxonmobil Chemical Patents Inc., USA
SO U.S. Pat. Appl. Publ., 18 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005101817	A1	20050512	US 2003-712953	20031112
	US 7132581	B2	20061107		
	WO 2005056476	A1	20050623	WO 2004-US19339	20040617
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRAI US 2003-712953 A 20031112

AB A processes is described for converting oxygenates (e.g., methanol) into olefins (e.g., ethylene and propylene) which includes pretreating the metalloaluminophosphate **catalyst** (e.g., SAPO-34 zeolites) used in the conversion reaction with an aldehyde (e.g., acetaldehyde). A fresh or regenerated metalloaluminophosphate zeolite **catalyst**, which is low in carbon content, is pretreated with an aldehyde. The aldehyde forms a hydrocarbon cocatalyst within the pore structure of the zeolite, and the pretreated zeolite containing the co-**catalyst** is used to convert the oxygenates into an olefinic product. Process flow diagrams are presented.

IC ICM C07C001-00

INCL 585639000

CC 35-2 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 23, 48, 67

ST alkene manuf catalytic oxygenate conversion; ethylene propylene manuf catalytic oxygenate conversion pretreatment

IT Alcohols, reactions

RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent) (C1; metalloaluminophosphate zeolite **catalyst** pretreatment with aldehydes in an oxygenate-into-olefins reaction system)

IT Aldehydes, preparation

RL: CAT (**Catalyst use**); EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process); USES (Uses) (C2-4, catalytic reaction products with metalloaluminophosphate zeolites; metalloaluminophosphate zeolite **catalyst** pretreatment with aldehydes in an oxygenate-into-olefins reaction system)

IT Polymerization

(addition; of alkenes)

IT Polymerization **catalysts**

(for the conversion of alkenes into polyolefins)

IT Polyolefins

RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PREP (Preparation); PROC (Process)

(manufacture of)

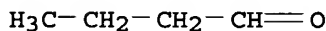
IT **Catalysts**

- (metalloaluminophosphate zeolite **catalyst** pretreatment with C2-4 aldehydes in an oxygenate-into-olefins reaction system)
- IT Molecular sieves
(metalloaluminophosphate, reaction products with C2-4 aldehydes; metalloaluminophosphate zeolite **catalyst** pretreatment with C2-4 aldehydes in an oxygenate-into-olefins reaction system)
- IT Zeolites (synthetic), uses
RL: **CAT (Catalyst use)**; **EPR (Engineering process)**; **PEP (Physical, engineering or chemical process)**; **PROC (Process)**; **USES (Uses)**
(metalloaluminophosphate, reaction products with C2-4 aldehydes; metalloaluminophosphate zeolite **catalyst** pretreatment with C2-4 aldehydes in an oxygenate-into-olefins reaction system)
- IT Hydrocarbons, reactions
RL: **EPR (Engineering process)**; **PEP (Physical, engineering or chemical process)**; **RCT (Reactant)**; **PROC (Process)**; **RACT (Reactant or reagent)**
(oxy; metalloaluminophosphate zeolite **catalyst** pretreatment with C2-4 aldehydes in an oxygenate-into-olefins reaction system)
- IT Silicoaluminophosphate zeolites
RL: **CAT (Catalyst use)**; **EPR (Engineering process)**; **PEP (Physical, engineering or chemical process)**; **PROC (Process)**; **USES (Uses)**
(reaction products with C2-4 aldehydes; metalloaluminophosphate zeolite **catalyst** pretreatment with C2-4 aldehydes in an oxygenate-into-olefins reaction system)
- IT 106-98-9DP, 1-Butene, catalytic reaction products with zeolites
RL: **CAT (Catalyst use)**; **EPR (Engineering process)**; **IMF (Industrial manufacture)**; **PEP (Physical, engineering or chemical process)**; **PREP (Preparation)**; **PROC (Process)**; **USES (Uses)**
(metalloaluminophosphate zeolite **catalyst** pretreatment in an oxygenate-into-olefins reaction system)
- IT 75-07-0DP, Acetaldehyde, catalytic reaction products with zeolites
123-38-6DP, Propional, catalytic reaction products with zeolites
RL: **CAT (Catalyst use)**; **EPR (Engineering process)**; **IMF (Industrial manufacture)**; **PEP (Physical, engineering or chemical process)**; **PREP (Preparation)**; **PROC (Process)**; **USES (Uses)**
(metalloaluminophosphate zeolite **catalyst** pretreatment with C2-4 aldehydes in an oxygenate-into-olefins reaction system)
- IT 74-85-1P, Ethene, preparation 115-07-1P, Propene, preparation
RL: **EPR (Engineering process)**; **IMF (Industrial manufacture)**; **PEP (Physical, engineering or chemical process)**; **RCT (Reactant)**; **PREP (Preparation)**; **PROC (Process)**; **RACT (Reactant or reagent)**
(metalloaluminophosphate zeolite **catalyst** pretreatment with C2-4 aldehydes in an oxygenate-into-olefins reaction system)
- IT 67-56-1, Methanol, reactions
RL: **EPR (Engineering process)**; **PEP (Physical, engineering or chemical process)**; **RCT (Reactant)**; **PROC (Process)**; **RACT (Reactant or reagent)**
(metalloaluminophosphate zeolite **catalyst** pretreatment with C2-4 aldehydes in an oxygenate-into-olefins reaction system)
- IT 123-72-8DP, Butyraldehyde, catalytic reaction products with zeolites
RL: **CAT (Catalyst use)**; **EPR (Engineering process)**; **IMF (Industrial manufacture)**; **PEP (Physical, engineering or chemical process)**; **PREP (Preparation)**; **PROC (Process)**; **USES (Uses)**
(metalloaluminophosphate zeolite **catalyst** pretreatment with aldehydes in an oxygenate-into-olefins reaction system)
- IT 409-21-2, Silicon carbide, uses
RL: **CAT (Catalyst use)**; **EPR (Engineering process)**; **PEP (Physical, engineering or chemical process)**; **PROC (Process)**; **USES (Uses)**
(support; metalloaluminophosphate zeolite **catalyst** pretreatment with C2-4 aldehydes in an oxygenate-into-olefins reaction system)

IT 115-07-1P, Propene, preparation
RL: EPR (Engineering process); IMF (Industrial manufacture); PEP
(Physical, engineering or chemical process); RCT (Reactant); PREP
(Preparation); PROC (Process); **RACT (Reactant or reagent)**
(metalloaluminophosphate zeolite catalyst pretreatment with
C2-4 aldehydes in an oxygenate-into-olefins reaction system)
RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



IT 123-72-8DP, Butyraldehyde, catalytic reaction products with
zeolites
RL: **CAT (Catalyst use)**; EPR (Engineering process); IMF
(Industrial manufacture); PEP (Physical, engineering or chemical process);
PREP (Preparation); PROC (Process); **USES (Uses)**
(metalloaluminophosphate zeolite catalyst pretreatment with
aldehydes in an oxygenate-into-olefins reaction system)
RN 123-72-8 HCAPLUS
CN Butanal (9CI) (CA INDEX NAME)



RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 5 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:322791 HCAPLUS

DN 142:355726

TI Manufacture of propylene oxide using cumene

IN Suzuki, Akio; Akutsu, Kazumasa

PA Sumitomo Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005097208	A	20050414	JP 2003-335328	20030926
PRAI	JP 2003-335328		20030926		

AB Propylene oxide is manufactured by (1) oxidation of cumene into cumene hydroperoxide, (2) epoxidn. of excess propylene by the hydroperoxide to give propylene oxide and cumyl alc., (3) recovering unreacted **propylene** from outlet **stream** and recycling, (4) separating **propylene** oxide from cumyl alc., (5) removing formaldehyde from process streams, and (6) hydrogenation of cumyl alc. into cumene in the presence of solid **catalysts** and recycling to the process 1. Propylene oxide is efficiently manufactured with repeated use of cumene while removing formaldehyde.

IC ICM C07D301-19

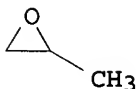
ICS C07D303-04

CC 35-2 (Chemistry of Synthetic High Polymers)

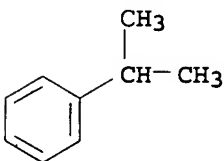
Section cross-reference(s): 27, 45

ST propylene oxide manuf cumene formaldehyde removal; epoxidn propylene cumene hydroperoxide recycling

- IT 98-83-9P, α -Methylstyrene, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(cumene precursor; manufacture of propylene oxide by epoxidn. of propylene using cumene while removing formaldehyde)
- IT 536-60-7P, Cumyl alcohol
RL: BYP (Byproduct); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(manufacture of propylene oxide by epoxidn. of propylene using cumene while removing formaldehyde)
- IT 75-56-9P, Propylene oxide, preparation
RL: IMF (Industrial manufacture); PUR (Purification or recovery);
PREP (Preparation)
(manufacture of propylene oxide by epoxidn. of propylene using cumene while removing formaldehyde)
- IT 80-15-9P, Cumene hydroperoxide 98-82-8P, Cumene
RL: IMF (Industrial manufacture); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(manufacture of propylene oxide by epoxidn. of propylene using cumene while removing formaldehyde)
- IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); **RACT (Reactant or reagent)**
(manufacture of propylene oxide by epoxidn. of propylene using cumene while removing formaldehyde)
- IT 50-00-0, Formaldehyde, processes
RL: REM (Removal or disposal); PROC (Process)
(manufacture of propylene oxide by epoxidn. of propylene using cumene while removing formaldehyde)
- IT 75-56-9P, Propylene oxide, preparation
RL: IMF (Industrial manufacture); PUR (Purification or recovery);
PREP (Preparation)
(manufacture of propylene oxide by epoxidn. of propylene using cumene while removing formaldehyde)
- RN 75-56-9 HCAPLUS
CN Oxirane, 2-methyl- (CA INDEX NAME)



- IT 98-82-8P, Cumene
RL: IMF (Industrial manufacture); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(manufacture of propylene oxide by epoxidn. of propylene using cumene while removing formaldehyde)
- RN 98-82-8 HCAPLUS
CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



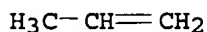
- IT 115-07-1, Propylene, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(manufacture of propylene oxide by epoxidn. of propylene using cumene while removing formaldehyde)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER: 6 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN :

AN 2005:80032 HCAPLUS

DN 142:482343

TI Study on Fe-Al-P-O catalyst for propylene epoxidation to propylene oxide

AU Zhong, Shun-he; Zhong, Liang; Sun, Fei-fei; Xiao, Xiu-fen

CS College of Chemical Engineering and Technology, Tianjin University, Tianjin, 300072, Peop. Rep. China

SO Ranliáo Huaxue Xuebao (2004), 32(6), 740-744

CODEN: RHXUD8; ISSN: 0253-2409

PB Kexue Chubanshe

DT Journal

LA Chinese

AB Fe-Al-P-O catalysts were prepared by sol-gel method. The phys. and chemical characters and reactivity of the catalysts were studied by using techniques of IR, x-ray diffraction, TEM, BET, TPR, and micro-reactor. The exptl. results revealed that Fe₁/2Al₁/2PO₄ catalyst is a uniform compound of 10 nm particles FePO₄ and AlPO₄, in which FePO₄ is highly-dispersed by AlPO₄ and the activity of the lattice oxygen is higher than that in the single FePO₄. The reactivity of Fe₁/2Al₁/2PO₄ catalyst is obviously related with the feed composition. In case of propylene and oxygen only as the feed, the outcome is mainly acrolein. Addition of H₂ into the feed stream leads to propylene oxide with some acrolein. Addition of H₂O into the feed stream consisted of C₃H₆, H₂ and O₂, can effectively restrict the formation of byproduct acrolein and increase the selectivity to propylene oxide. At a condition of 0.1 MPa, 200°, C₃H₆/O₂/H₂/H₂O/N₂(mol) = 1:1:1:1:6 and space velocity of 1 200 h⁻¹, the propylene conversion of 8.9% and the propylene oxide selectivity of 81.0% can be obtained.

CC 35-2 (Chemistry of Synthetic High Polymers)

ST propylene epoxidn propylene oxide synthesis iron aluminum catalyst

IT Epoxidation

(of propylene for synthesis of propylene oxide using Fe-Al-P-O catalyst)

IT Epoxidation catalysts

Sol-gel processing

(preparation of Fe-Al-P-O catalyst for synthesis of propylene oxide by propylene epoxidn.)

IT 7784-30-7P, Aluminum phosphate 10045-86-0P, Iron phosphate

159093-11-5P, Aluminum iron phosphate (Al_{0.5}Fe_{0.5}(PO₄))

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(preparation of Fe-Al-P-O catalyst for synthesis of propylene oxide by propylene epoxidn.)

IT 7429-90-5, Aluminum, reactions 7439-89-6, Iron, reactions 7722-76-1, Ammonium phosphate ((NH₄)H₂PO₄) 7784-27-2, Aluminum nitrate nonahydrate

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of Fe-Al-P-O catalyst for synthesis of propylene oxide by propylene epoxidn.)

IT 115-07-1, Propylene, reactions 7722-84-1, Hydrogen peroxide, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (synthesis of propylene oxide by propylene epoxidn. using Fe-Al-P-O catalyst)

IT 75-56-9P, Propylene oxide, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (synthesis of propylene oxide by propylene epoxidn. using Fe-Al-P-O catalyst)

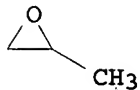
IT 115-07-1, Propylene, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (synthesis of propylene oxide by propylene epoxidn. using Fe-Al-P-O catalyst)

RN 115-07-1 HCAPLUS
 CN 1-Propene (9CI) (CA INDEX NAME)



IT 75-56-9P, Propylene oxide, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (synthesis of propylene oxide by propylene epoxidn. using Fe-Al-P-O catalyst)

RN 75-56-9 HCAPLUS
 CN Oxirane, 2-methyl- (CA INDEX NAME)



L31 ANSWER 7 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2004:934380 HCAPLUS
 DN 141:380287
 TI Process for converting a hydrocarbon into an oxygenate or a nitrile
 IN Brophy, John H.; Pesa, Frederick A.; Tonkovich, Anna Lee; McDaniel, Jeffrey S.; Jarosch, Kai Tod Paul
 PA UK
 SO U.S. Pat. Appl. Publ., 24 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004220434	A1	20041104	US 2003-429286	20030502
	CA 2523704	A1	20041118	CA 2004-2523704	20040427
	WO 2004099113	A1	20041118	WO 2004-US12870	20040427
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE,				

SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,
SN, TD, TG

EP 1626948 A1 20060222 EP 2004-760584 20040427
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK

BR 2004010039 A 20060425 BR 2004-10039 20040427
JP 2006525334 T 20061109 JP 2006-513347 20040427

PRAI US 2003-429286 A 20030502
WO 2004-US12870 W 20040427

AB A process for converting a hydrocarbon reactant to a product comprising an oxygenate (e.g., ethylene oxide) or a nitrile comprises: (A) flowing a reactant composition comprising the hydrocarbon reactant, and oxygen or a source of oxygen, and optionally ammonia, through a microchannel reactor in contact with a catalyst to convert the hydrocarbon reactant to the product, the hydrocarbon reactant undergoing an exothermic reaction in the microchannel reactor; (B) transferring heat from the microchannel reactor to a heat exchanger during step (A); and (C) quenching the product from step (A).

IC ICM C07C027-00

INCL 568959000

CC 35-2 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 48

ST oxygenate manuf hydrocarbon conversion; nitrile manuf hydrocarbon conversion; ethylene oxide manuf hydrocarbon conversion; oxirane manuf hydrocarbon conversion

IT Aromatic hydrocarbons, reactions

RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent) (alkyl; process for converting a hydrocarbon into an oxygenate or a nitrile)

IT Air

Ammonoxidation

Ceramics

Epoxidation

Heat exchangers

Oxidation

(in a process for converting a hydrocarbon into an oxygenate or a nitrile)

IT Alloys, uses

Glass, uses

Glass fibers, uses

RL: DEV (Device component use); EPR (Engineering process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(in a process for converting a hydrocarbon into an oxygenate or a nitrile)

IT Reactors

(microchannel; in a process for converting a hydrocarbon into an oxygenate or a nitrile)

IT Alcohols, preparation

Aldehydes, preparation

Epoxides

Nitriles, preparation

RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)

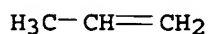
(process for converting a hydrocarbon into an oxygenate or a nitrile)

IT Alkadienes

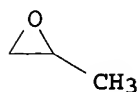
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(process for converting a hydrocarbon into an oxygenate or a nitrile)

- IT Alkanes, reactions
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(process for converting a hydrocarbon into an oxygenate or a nitrile)
- IT Alkenes, reactions
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(process for converting a hydrocarbon into an oxygenate or a nitrile)
- IT Hydrocarbons, reactions
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(process for converting a hydrocarbon into an oxygenate or a nitrile)
- IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 7440-50-8, Copper, uses 11105-19-4, Monel 12597-69-2, Steel, uses 12597-71-6, Brass, uses 12606-02-9, Inconel 14808-60-7, Quartz, uses
RL: DEV (Device component use); EPR (Engineering process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(in a process for converting a hydrocarbon into an oxygenate or a nitrile)
- IT 71-43-2, Benzene, reactions 74-85-1, Ethene, reactions 100-42-5, Styrene, reactions 106-98-9, 1-Butene, reactions 106-99-0, Butadiene, reactions 108-88-3, Methylbenzene, reactions 115-07-1, Propene, reactions 463-49-0, Allene 1330-20-7, Dimethylbenzene, reactions 7664-41-7, Ammonia, reactions 7782-44-7, Oxygen, reactions
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(in a process for converting a hydrocarbon into an oxygenate or a nitrile)
- IT 50-00-0P, Formaldehyde, preparation 64-17-5P, Ethanol, preparation 67-56-1P, Methanol, preparation 75-07-0P, Acetaldehyde, preparation 75-21-8P, Oxirane, preparation 75-56-9P, Methyloxirane, preparation 107-18-6P, Allyl alcohol, preparation
RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
(process for converting a hydrocarbon into an oxygenate or a nitrile)
- IT 115-07-1, Propene, reactions
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(in a process for converting a hydrocarbon into an oxygenate or a nitrile)
- RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



- IT 75-56-9P, Methyloxirane, preparation
RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
(process for converting a hydrocarbon into an oxygenate or a nitrile)
- RN 75-56-9 HCAPLUS
CN Oxirane, 2-methyl- (CA INDEX NAME)



L31 ANSWER 8 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2004:203821 HCAPLUS
 DN 140:236204
 TI An integrated method for production of propylene oxide
 IN Bender, Michael; Zehner, Peter; Machhammer, Otto; Mueller, Ulrich; Harth, Klaus; Schindler, Goetz-Peter; Junicke, Henrik
 PA BASF Aktiengesellschaft, Germany
 SO PCT Int. Appl., 35 pp.
 CODEN: PIXXD2
 DT Patent
 LA German
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004020423	A1	20040311	WO 2003-EP9616	20030829
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	DE 10240129	A1	20040519	DE 2002-10240129	20020830
	DE 10240129	B4	20041111		
	CA 2496954	A1	20040311	CA 2003-2496954	20030829
	AU 2003266329	A1	20040319	AU 2003-266329	20030829
	EP 1537092	A1	20050608	EP 2003-790944	20030829
	EP 1537092	B1	20060607		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	CN 1688560	A	20051026	CN 2003-824612	20030829
	AT 328876	T	20060615	AT 2003-790944	20030829
	US 2005245751	A1	20051103	US 2005-526045	20050228
	US 7173143	B2	20070206		
PRAI	DE 2002-10240129	A	20020830		
	WO 2003-EP9616	W	20030829		

AB An integrated method for production of propylene oxide comprises at least the steps of (a) dehydrogenation of propane to obtain a partial stream T(0) containing at least propane, propene and hydrogen, (b) separation of the partial

stream T(0) to obtain at least one gaseous partial stream T(2) with high hydrogen content and a partial stream T(1) containing at least propene and propane, (c) synthesis of hydrogen peroxide using the partial stream T(2) to produce a partial stream T(4) with high hydrogen peroxide content and a gaseous partial stream T(6), (d) separation of the partial stream T(1) to obtain at least one partial stream T(5) with high propane content and at least one partial stream T(3) with high propene content, and (e) reaction of the partial stream T(3) with the partial stream T(4) to obtain propylene oxide. The epoxidn. step (e) can be carried out in the presence of catalysts. The propane quality is not critical, pure propane as well as recycled propane containing byproducts

substantially unaffected dehydrogenation can be used.

IC ICM C07D301-12

CC 35-2 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 27

ST propane dehydrogenation epoxidn propylene oxide prodn

IT Dehydrogenation
Epoxidation
(integrated method for production of propylene oxide)

IT 75-56-9P, Propylene oxide, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(integrated method for production of)

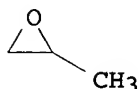
IT 115-07-1P, Propylene, preparation 7722-84-1P, Hydrogen peroxide,
preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);
RACT (Reactant or reagent)
(integrated method for production of propylene oxide)

IT 74-98-6, Propane, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(integrated method for production of propylene oxide)

IT 75-56-9P, Propylene oxide, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(integrated method for production of)

RN 75-56-9 HCAPLUS

CN Oxirane, 2-methyl- (CA INDEX NAME)



IT 115-07-1P, Propylene, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);
RACT (Reactant or reagent)
(integrated method for production of propylene oxide)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 9 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:20380 HCAPLUS

DN 140:93912

TI Process for the epoxidation of olefins with hydrogen peroxide followed by
hydrogenation of the product stream.

IN Haas, Thomas; Thiele, Georg; Moroff, Gerald; Ullrich, Norbert; Hofen,
Willi; Stochniol, Guido; Eickhoff, Hubertus; Pohl, Werner; Woll, Wolfgang;
Brasse, Claudia; Berges, Jose; Kampeis, Percy

PA Degussa AG, Germany; Uhde GmbH

SO U.S. Pat. Appl. Publ., 8 pp.
CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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 PI US 2004006239 A1 20040108 US 2003-428607 20030502
 US 7141683 B2 20061128
 PRAI US 2002-376845P P 20020502
 OS CASREACT 140:93912
 AB Olefins were epoxidized by (1) reacting an olefin with H2O2 in presence of an epoxidn. catalyst and an alc. solvent; (2) separating product olefin oxide and unreacted olefin from the reaction product of step 1; (3) recovering a stream comprising the alc. solvent; and (4) subjecting the recovered stream of step 3 to hydrogenation. Hydrogenation of the product stream from propene epoxidn. using Ru/C improved Ti silicalite epoxidn. catalyst activity and selectivity and reduced MeCHO and Me formate byproduct after 500 h.
 IC ICM C07D301-12
 INCL 549531000
 CC 27-2 (Heterocyclic Compounds (One Hetero Atom))
 Section cross-reference(s): 35
 ST olefin epoxidn hydrogen peroxide catalyst alc solvent
 hydrogenation; propylene oxide prepn product stream
 hydrogenation
 IT Titanium silicalite
 RL: CAT (Catalyst use); USES (Uses)
 (epoxidn. catalyst; process for the epoxidn. of olefins with
 hydrogen peroxide followed by hydrogenation of the product stream)
 IT Epoxidation
 Hydrogenation
 (process for the epoxidn. of olefins with hydrogen peroxide followed by
 hydrogenation of the product stream)
 IT Epoxides
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (process for the epoxidn. of olefins with hydrogen peroxide followed by
 hydrogenation of the product stream)
 IT Alcohols, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (process for the epoxidn. of olefins with hydrogen peroxide followed by
 hydrogenation of the product stream)
 IT Alkenes, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (process for the epoxidn. of olefins with hydrogen peroxide followed by
 hydrogenation of the product stream)
 IT Hydrogenation catalysts
 (ruthenium, rhodium, palladium, platinum, silver, iridium, iron,
 copper, nickel, cobalt; process for the epoxidn. of olefins with
 hydrogen peroxide followed by hydrogenation of the product stream)
 IT Epoxidation catalysts
 (titanium silicalite; process for the epoxidn. of olefins with hydrogen
 peroxide followed by hydrogenation of the product stream)
 IT 1314-23-4, Zirconium dioxide, uses 1344-28-1, Aluminum oxide, uses
 7631-86-9, Silica, uses 13463-67-7, Titanium dioxide, uses
 RL: CAT (Catalyst use); USES (Uses)
 (catalyst support; process for the epoxidn. of olefins with
 hydrogen peroxide followed by hydrogenation of the product stream)
 IT 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7440-02-0, Nickel, uses
 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6,
 Rhodium, uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses
 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses
 RL: CAT (Catalyst use); USES (Uses)
 (hydrogenation catalyst; process for the epoxidn. of olefins
 with hydrogen peroxide followed by hydrogenation of the product stream)

IT 75-56-9P, Propene oxide, preparation
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
(Preparation)
(process for the epoxidn. of olefins with hydrogen peroxide followed by
hydrogenation of the product stream)

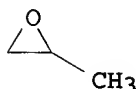
IT 67-56-1, Methanol, uses
RL: NUU (Other use, unclassified); USES (Uses)
(process for the epoxidn. of olefins with hydrogen peroxide followed by
hydrogenation of the product stream)

IT 115-07-1, Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for the epoxidn. of olefins with hydrogen peroxide followed by
hydrogenation of the product stream)

IT 7722-84-1, Hydrogen peroxide, reactions
RL: RGT (Reagent); RACT (Reactant or reagent)
(process for the epoxidn. of olefins with hydrogen peroxide followed by
hydrogenation of the product stream)

IT 75-56-9P, Propene oxide, preparation
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
(Preparation)
(process for the epoxidn. of olefins with hydrogen peroxide followed by
hydrogenation of the product stream)

RN 75-56-9 HCAPLUS
CN Oxirane, 2-methyl- (CA INDEX NAME)



IT 115-07-1, Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for the epoxidn. of olefins with hydrogen peroxide followed by
hydrogenation of the product stream)

RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 58 THERE ARE 58 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 10 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:747904 HCAPLUS
DN 139:278233
TI Process for epoxidation of organic compounds with oxygen or
oxygen-delivering compounds using catalysts containing
metal-organic framework (MOF) materials
IN Mueller, Ulrich; Lobree, Lisa; Hesse, Michael; Yaghi, Omar M.; Eddaoudi,
Mohamed
PA BASF Aktiengesellschaft, Germany; The Regents of the University of
Michigan
SO U.S., 13 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6624318	B1	20030923	US 2002-157494	20020530
	WO 2003101975	A1	20031211	WO 2003-EP5547	20030527

W: US

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR

EP 1513823 A1 20050316 EP 2003-730125 20030527

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK

PRAI US 2002-157494 A 20020530

WO 2003-EP5547 W 20030527

OS CASREACT 139:278233

AB The present invention relates to a process for the epoxidn. of ≥ 1 organic compound with an oxygen-delivering substance, for example a hydroperoxide, in the presence of ≥ 1 **catalyst** containing a metal-organic framework material comprising pores and a metal ion and ≥ 1 bidentate organic compound, said bidentate organic compound being coordinately bound to the metal ion. Thus, a 66:24:10 volume ratio of O₂, He, and **propylene** was **streamed** through a tube reactor containing AgNO₃-treated MOF-5 at 220° to give propylene oxide with a turnover of 3.3% and selectivity of 10.3% after 15 h.

IC ICM C07D301-04

ICS C07D301-12; C07D301-19

INCL 549529000; 549523000; 549531000; 549533000; 549534000; 549536000

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 23, 27, 30, 32, 67

ST epoxidn **catalyst** metal propylene propylene oxide; alkene epoxidn**catalyst** metal ion bidentate complex; propylene epoxidn mof5

silver ion oxygen

IT Alcohols, uses

RL: **CAT (Catalyst use)**; **USES (Uses)**(aliphatic, ligand; epoxidn. of organic compound with oxygen or oxygen-delivering compds. using **catalysts** containing metal-organic frame-work materials)

IT Phosphonium compounds

RL: **CAT (Catalyst use)**; **USES (Uses)**(alkyl, aryl ligand; epoxidn. of organic compound with oxygen or oxygen-delivering compds. using **catalysts** containing metal-organic frame-work materials)

IT Amines, uses

RL: **CAT (Catalyst use)**; **USES (Uses)**(aromatic, ligand; epoxidn. of organic compound with oxygen or oxygen-delivering compds. using **catalysts** containing metal-organic frame-work materials)

IT Epoxidation

Epoxidation **catalysts**

Pore size

(epoxidn. of organic compound with oxygen or oxygen-delivering compds. using **catalysts** containing metal-organic frame-work materials)

IT Epoxides

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(epoxidn. of organic compound with oxygen or oxygen-delivering compds. using **catalysts** containing metal-organic frame-work materials)

IT Terpenes, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(epoxidn. of organic compound with oxygen or oxygen-delivering compds. using **catalysts** containing metal-organic frame-work materials)

IT Phosphates, uses

- RL: CAT (Catalyst use); USES (Uses)
(hydrogen, ligand; epoxidn. of organic compound with oxygen or oxygen-delivering compds. using **catalysts** containing metal-organic frame-work materials)
- IT Halogen compounds
RL: CAT (Catalyst use); USES (Uses)
(iodates, ligand; epoxidn. of organic compound with oxygen or oxygen-delivering compds. using **catalysts** containing metal-organic frame-work materials)
- IT Amines, uses
Bicarbonates
Bromates
Bromides, uses
Carbonates, uses
Chlorates
Chlorides, uses
Diphosphates
Iodides, uses
Nitrates, uses
Phenols, uses
Phosphates, uses
Phosphites
Sulfates, uses
Sulfites
RL: CAT (Catalyst use); USES (Uses)
(ligand; epoxidn. of organic compound with oxygen or oxygen-delivering compds. using **catalysts** containing metal-organic frame-work materials)
- IT Acids, uses
RL: CAT (Catalyst use); USES (Uses)
(organic, ligand; epoxidn. of organic compound with oxygen or oxygen-delivering compds. using **catalysts** containing metal-organic frame-work materials)
- IT Polyphosphates
RL: CAT (Catalyst use); USES (Uses)
(triphosphates, ligand; epoxidn. of organic compound with oxygen or oxygen-delivering compds. using **catalysts** containing metal-organic frame-work materials)
- IT Steroids, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(unsatd.; epoxidn. of organic compound with oxygen or oxygen-delivering compds. using **catalysts** containing metal-organic frame-work materials)
- IT 115-07-1D, 1-Propene, 3-halo derivs.
RL: RCT (Reactant); RACT (Reactant or reagent)
(allyl halides; epoxidn. of organic compound with oxygen or oxygen-delivering compds. using **catalysts** containing metal-organic frame-work materials)
- IT 7761-88-8, Silver nitrate, uses 13775-47-8 14127-61-8, Calcium 2+, uses 14175-55-4, Silicon 2+, uses 14280-50-3, Lead 2+, uses 14302-87-5, Mercury +2, uses 14546-48-6, Manganese 3+, uses 14627-67-9, Thallium 3+, uses 14701-21-4, Silver +1, uses 14701-22-5, Nickel +2, uses 14903-34-5, Nickel +1, uses 15121-26-3, Vanadium 2+, uses 15158-11-9, Copper +2, uses 15158-12-0, Lead 4+, uses 15438-31-0, Iron 2+, uses 15543-40-5, Zirconium 4+, uses 15735-13-4, Germanium 2+, uses 16043-45-1, Titanium 4+, uses 16065-83-1, Chromium 3+, uses 16065-84-2, Germanium 4+, uses 16065-88-6, Palladium +2, uses 16130-78-2, Zinc terephthalate 16397-91-4, Manganese 2+, uses 16463-30-2, Bismuth +1, uses 17428-41-0, Arsenic +5, uses 17493-86-6,

Copper +1, uses 20074-52-6, Iron 3+, uses 20561-55-1, Palladium +1, uses 20561-56-2, Platinum +1, uses 20561-59-5, Rhodium 1+, uses 20681-14-5, Gold +1, uses 22537-22-0, Magnesium 2+, uses 22537-23-1, Aluminum 3+, uses 22537-24-2, Silicon 4+, uses 22537-29-7, Scandium 3+, uses 22537-33-3, Gallium 3+, uses 22537-39-9, Strontium 2+, uses 22537-40-2, Yttrium 3+, uses 22537-48-0, Cadmium +2, uses 22537-49-1, Indium 3+, uses 22537-50-4, Tin 4+, uses 22537-51-5, Antimony +5, uses 22541-12-4, Barium 2+, uses 22541-25-9, Hafnium 4+, uses 22541-33-9, Bismuth +5, uses 22541-53-3, Cobalt 2+, uses 22541-54-4, uses 22541-59-9, Ruthenium 2+, uses 22541-60-2, Rhodium 2+, uses 22541-63-5, Cobalt 3+, uses 22541-76-0, Vanadium 4+, uses 22541-77-1, Vanadium 3+, uses 22541-83-9, Niobium 3+, uses 22541-86-2, Molybdenum 3+, uses 22541-88-4, Ruthenium 3+, uses 22541-90-8, Tin 2+, uses 22541-99-7, Tungsten 3+, uses 22542-03-6, Rhenium 2+, uses 22542-06-9, Osmium 3+, uses 22542-07-0, Osmium 2+, uses 22542-09-2, Iridium 2+, uses 22542-10-5, Platinum +2, uses 22679-96-5, Antimony +1, uses 22856-08-2, Arsenic +1, uses 23713-46-4, Bismuth +3, uses 23713-48-6, Antimony +3, uses 23713-49-7, Zinc +2, uses 29010-86-4D, Benzenedicarboxylic acid, ester 35182-18-4, Tantalum 3+, uses 36756-53-3, Rhenium 3+, uses 54923-08-9, Iridium 1+, uses 255367-67-0
 RL: CAT (Catalyst use); USES (Uses)

(epoxidn. of organic compound with oxygen or oxygen-delivering compds. using catalysts containing metal-organic frame-work materials)

IT 75-56-9P, Propylene oxide, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)

(epoxidn. of organic compound with oxygen or oxygen-delivering compds. using catalysts containing metal-organic frame-work materials)

IT 57-10-3, Palmitic acid, reactions 60-33-3, Linoleic acid, reactions 68-26-8, Vitamin a 74-85-1, Ethene, reactions 75-38-7, Vinylidene fluoride 77-73-6, Dicyclopentadiene 78-70-6, Linalool 78-79-5, Isoprene, reactions 79-10-7, Acrylic acid, reactions 79-41-4, Methacrylic acid, reactions 95-13-6, Indene 97-54-1, Isoeugenol 98-83-9, Methylstyrene, reactions 100-40-3, Vinylcyclohexene 100-42-5, Styrene, reactions 104-46-1, Anethole 106-24-1, Geraniol 106-98-9, 1-Butene, reactions 106-99-0, Butadiene, reactions 107-01-7, 2-Butene 107-18-6, Allyl alcohol, reactions 109-92-2, Ethoxyethene 110-16-7, Maleic acid, reactions 110-83-8, Cyclohexene, reactions 112-80-1, Oleic acid, reactions 115-07-1, Propylene, reactions 115-11-7, Isobutene, reactions 115-95-7, Linalyl acetate 142-29-0, Cyclopentene 498-66-8, Norbornene 504-60-9, Piperylene 513-42-8, Methallyl alcohol 563-47-3, Methallyl chloride 588-59-0, Stilbene 591-97-9, Crotyl chloride 625-38-7, Vinylacetic acid 628-92-2, Cycloheptene 695-12-5, Vinylcyclohexane 930-22-3, Vinylloxirane 931-88-4, Cyclooctene 1321-74-0, Divinylbenzene, reactions 1501-82-2, Cyclododecene 3724-65-0, Crotonic acid 6142-73-0, Methylenecyclopropane 6842-15-5, Tetrapropylene 7235-40-7, β -Carotene 9003-17-2, Polybutadiene 9003-27-4, Polyisobutene 11069-19-5, Dichlorobutene 11098-57-0, Pentenol 12542-32-4, Butenediol 13987-01-4, Tripropylene 25167-70-8, Diisobutene 25264-93-1, Hexene 25339-56-4, Heptene 25377-72-4, Pentene 25377-82-6, Tridecene 25377-83-7, Octene 25378-22-7, Dodecene 25377-30-8, Diphenylbutadiene 26952-13-6, Tetradecene 27070-59-3, Cyclododecatriene 27215-95-8, Nonene 27400-78-8, Eicosene 29965-97-7, Cyclooctadiene 39014-56-7, Tetrahydroindene 40356-67-0, Vinylnorbornene 42296-74-2, Hexadiene 57323-59-8, Butenol 61665-19-8, Trimethylpentene 64391-40-8, 2-Tridecenol 73456-83-4, Octadienol 224802-37-3, Cyclopentenediol

RL: RCT (Reactant); RACT (Reactant or reagent)

(epoxidn. of organic compound with oxygen or oxygen-delivering compds. using catalysts containing metal-organic frame-work materials)

IT 80-15-9, Cumen hydroperoxide 3071-32-7, Ethylbenzene hydroperoxide

7722-84-1, Hydrogen peroxide, reactions 7782-44-7, Oxygen, reactions
10028-15-6, Ozone, reactions 10102-43-9, Nitric oxide, reactions
RL: RGT (Reagent); RACT (Reactant or reagent)

(epoxidn. of organic compound with oxygen or oxygen-delivering compds. using
catalysts containing metal-organic frame-work materials)

IT 67-64-1, Acetone, uses 71-43-2, Benzene, uses 74-82-8, Methane, uses
75-09-2, Methylene chloride, uses 91-20-3, Naphthalene, uses 98-95-3,
Nitrobenzene, uses 107-06-2, 1,2-Dichloroethane, uses 108-88-3,
Toluene, uses 108-90-7, Chlorobenzene, uses 109-99-9, Tetrahydrofuran,
uses 110-02-1, Thiophene 110-54-3, Hexane, uses 110-86-1, Pyridine,
uses 121-44-8, Triethylamine, uses 124-38-9, Carbon dioxide, uses
141-43-5, Ethanolamine, uses 142-45-0D, 2-Butynedioic acid, ester
554-95-0D, 1,3,5-Benzene tricarboxylic acid, ester 1330-20-7, Xylene,
uses 1493-13-6, Trifluoromethanesulfonic acid 7664-41-7, Ammonia, uses
14066-20-7, Dihydrogen phosphate, uses 27252-21-7D, Benzenetricarboxylic
acid, ester 28604-87-7D, Naphthalenedicarboxylic acid, ester
100884-80-8D, 1,3,5,7-Adamantanetetracarboxylic acid, ester
160517-35-1D, ester 605643-38-7D, ester

RL: CAT (Catalyst use); USES (Uses)

(ligand; epoxidn. of organic compound with oxygen or oxygen-delivering
compds. using **catalysts** containing metal-organic frame-work
materials)

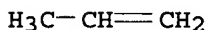
IT 115-07-1D, 1-Propene, 3-halo derivs.

RL: RCT (Reactant); RACT (Reactant or reagent)

(allyl halides; epoxidn. of organic compound with oxygen or
oxygen-delivering compds. using **catalysts** containing metal-organic
frame-work materials)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



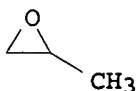
IT 75-56-9P, Propylene oxide, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)

(epoxidn. of organic compound with oxygen or oxygen-delivering compds. using
catalysts containing metal-organic frame-work materials)

RN 75-56-9 HCAPLUS

CN Oxirane, 2-methyl- (CA INDEX NAME)



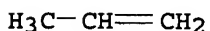
IT 115-07-1, Propylene, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(epoxidn. of organic compound with oxygen or oxygen-delivering compds. using
catalysts containing metal-organic frame-work materials)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 11 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:977710 HCAPLUS

DN 138:39177

TI Process for the recovery of combustible components of a gas stream

IN Hofen, Willi; Thiele, Georg; Woell, Wolfgang

PA Degussa AG, Germany; Uhde GmbH

SO PCT Int. Appl., 17 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN. CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002102496	A1	20021227	WO 2002-EP6448	20020610
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1270062	A1	20030102	EP 2001-114576	20010618
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CA 2450816	A1	20021227	CA 2002-2450816	20020610
EP 1397192	A1	20040317	EP 2002-748768	20020610
EP 1397192	B1	20061004		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
BR 2002010454	A	20040817	BR 2002-10454	20020610
CN 1524009	A	20040825	CN 2002-812201	20020610
JP 2004535920	T	20041202	JP 2003-505074	20020610
AT 341386	T	20061015	AT 2002-748768	20020610
IN 2003KN01593	A	20060317	IN 2003-KN1593	20031209
ZA 2003009761	A	20040928	ZA 2003-9761	20031217
PRAI EP 2001-114576	A	20010618		
WO 2002-EP6448	W	20020610		

OS CASREACT 138:39177

AB The process for the recovery and recycling of combustible components of a gas stream comprising the combustible components and oxygen by selective absorption of the combustible components in a solvent, whereby during the absorption the gas phase is dispersed in a continuous liquid phase of the solvent. In the epoxidn. of propene with hydrogen peroxide in an alc. solvent in presence of a catalyst, wherein a gas stream comprising unreacted propene, propene oxide and oxygen from the decomposition of the hydrogen peroxide is separated from the reaction mixture and the combustible components are recovered.

IC ICM B01D053-14

ICS B01D053-18; C07D301-32

CC 27-2 (Heterocyclic Compounds (One Hetero Atom))

ST propylene oxide manuf oxidn waste gas recycling; explosion prevention

propylene oxide manuf waste gas recycling

IT Solvents

(organic; process for the recovery of combustible components of a gas stream in the manufacture of propylene oxide)

IT Absorption

Epoxidation

Explosion prevention
Oxidation
Recycling
Waste gases
 (process for the recovery of combustible components of a gas
 stream in the manufacture of **propylene oxide**)

IT Peroxides, preparation
RL: PUR (Purification or recovery); RCT (Reactant); PREP (Preparation);
RACT (Reactant or reagent)
 (process for the recovery of combustible components of a gas
 stream in the manufacture of **propylene oxide**)

IT Noble gases, uses
RL: TEM (Technical or engineered material use); USES (Uses)
 (process for the recovery of combustible components of a gas
 stream in the manufacture of **propylene oxide**)

IT Alcohols, uses
Aromatic hydrocarbons, uses
Hydrocarbons, uses
Ketones, uses
RL: TEM (Technical or engineered material use); USES (Uses)
 (solvent; process for the recovery of combustible components of a gas
 stream in the manufacture of **propylene oxide**)

IT 75-56-9P, Propylene oxide, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
 (process for the recovery of combustible components of a gas
 stream in the manufacture of **propylene oxide**)

IT 7782-44-7P, Oxygen, preparation
RL: PUR (Purification or recovery); PREP (Preparation)
 (process for the recovery of combustible components of a gas
 stream in the manufacture of **propylene oxide**)

IT 115-07-1P, Propylene, preparation
RL: PUR (Purification or recovery); RCT (Reactant); PREP (Preparation);
RACT (Reactant or reagent)
 (process for the recovery of combustible components of a gas
 stream in the manufacture of **propylene oxide**)

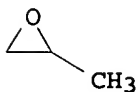
IT 71-43-2, Benzene, reactions 7722-84-1, Hydrogen peroxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
 (process for the recovery of combustible components of a gas
 stream in the manufacture of **propylene oxide**)

IT 124-38-9, Carbon dioxide, uses 7727-37-9, Nitrogen, uses
RL: TEM (Technical or engineered material use); USES (Uses)
 (process for the recovery of combustible components of a gas
 stream in the manufacture of **propylene oxide**)

IT 67-56-1, Methanol, uses
RL: TEM (Technical or engineered material use); USES (Uses)
 (solvent; process for the recovery of combustible components of a gas
 stream in the manufacture of **propylene oxide**)

IT 75-56-9P, Propylene oxide, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
 (process for the recovery of combustible components of a gas
 stream in the manufacture of **propylene oxide**)

RN 75-56-9 HCAPLUS
CN Oxirane, 2-methyl- (CA INDEX NAME)



IT 115-07-1P, Propylene, preparation
 RL: PUR (Purification or recovery); RCT (Reactant); PREP (Preparation);
 RACT (Reactant or reagent)
 (process for the recovery of combustible components of a gas
 stream in the manufacture of propylene oxide)
 RN 115-07-1 HCAPLUS
 CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 12 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:964717 HCAPLUS

DN 138:24631

TI Process for the recovery of combustible components of a gas stream
 in the manufacture of propylene oxide

IN Hofen, Willi; Thiele, Georg; Woll, Wolfgang

PA Degussa AG, Germany; UHDE GmbH

SO U.S. Pat. Appl. Publ., 7 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002189450	A1	20021219	US 2002-174549	20020618
	US 6749668	B2	20040615		
PRAI	US 2001-298377P	P	20010618		

AB A process for the recovery of combustible components of a gas stream
 containing the combustible components and oxygen by selective absorption of
 the combustible components in a solvent, whereby during the absorption the
 gas phase is dispersed in a continuous liquid phase of the solvent. In a
 preferred embodiment the process is applied to give a process for the
 epoxidn. of propene with hydrogen peroxide in the alc. solvent in presence
 of a catalyst, wherein a gas stream including unreacted propene,
 propene oxide and oxygen from the decomposition of the hydrogen peroxide is
 separated from the epoxidn. reaction mixture and the combustible components in
 said gas stream are recovered using the process as described above.

IC ICM B01D053-14

INCL 095226000

CC 27-2 (Heterocyclic Compounds (One Hetero Atom))

ST propylene oxide manuf oxidn waste gas recycling

IT Solvents

(organic; process for the recovery of combustible components of a gas
 stream in the manufacture of propylene oxide)

IT Absorption

Epoxidation

Explosion prevention

Oxidation

Recycling

Waste gases

(process for the recovery of combustible components of a gas
 stream in the manufacture of propylene oxide)

IT Peroxides, preparation

RL: PUR (Purification or recovery); RCT (Reactant); PREP (Preparation);

RACT (Reactant or reagent)

(process for the recovery of combustible components of a gas stream in the manufacture of propylene oxide)

IT Noble gases, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(process for the recovery of combustible components of a gas stream in the manufacture of propylene oxide)

IT Alcohols, uses
Aromatic hydrocarbons, uses
Hydrocarbons, uses
Ketones, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; process for the recovery of combustible components of a gas stream in the manufacture of propylene oxide)

IT 75-56-9P, Propylene oxide, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(process for the recovery of combustible components of a gas stream in the manufacture of propylene oxide)

IT 7782-44-7P, Oxygen, preparation
RL: PUR (Purification or recovery); PREP (Preparation)
(process for the recovery of combustible components of a gas stream in the manufacture of propylene oxide)

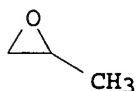
IT 115-07-1P, Propylene, preparation
RL: PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(process for the recovery of combustible components of a gas stream in the manufacture of propylene oxide)

IT 7722-84-1, Hydrogen peroxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for the recovery of combustible components of a gas stream in the manufacture of propylene oxide)

IT 67-56-1, Methanol, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; process for the recovery of combustible components of a gas stream in the manufacture of propylene oxide)

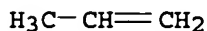
IT 75-56-9P, Propylene oxide, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(process for the recovery of combustible components of a gas stream in the manufacture of propylene oxide)

RN 75-56-9 HCAPLUS
CN Oxirane, 2-methyl- (CA INDEX NAME)



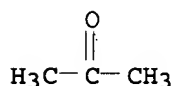
IT 115-07-1P, Propylene, preparation
RL: PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(process for the recovery of combustible components of a gas stream in the manufacture of propylene oxide)

RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)

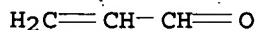


L31 ANSWER 13 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:936943 HCAPLUS
DN 138:189766
TI YSZ aided oxidation of C2-C4 hydrocarbons into oxygenates over MoO3 or V2O5
AU Takehira, K.; Shishido, T.; Komatsu, T.; Hamakawa, S.; Kajioka, H.
CS Department of Applied Chemistry, Hiroshima University, Graduate School of Engineering, Higashi-hiroshima, 739-8527, Japan
SO Solid State Ionics (2002), 152-153, 641-646
CODEN: SSIOD3; ISSN: 0167-2738
PB Elsevier Science B.V.
DT Journal
LA English
AB MoO3 and V2O5 were deposited on the Au anode of the electrochem. reactor using yttria-stabilized zirconia as a solid electrolyte, and oxygen was pumped to each metal oxide through the YSZ by closing the elec. circuit. The system was used for the oxidation of C2-C4 hydrocarbons over MoO3 and V2O5 under the oxygen pumping conditions at 500°. Alkanes were not oxidized at all but alkenes were selectively oxidized to the corresponding aldehydes over MoO3, while alkanes were activated to initiate the oxidation reaction and alkenes were deeply oxidized over V2O5. Over MoO3, the highest selectivity to aldehyde was observed with isobutene (methacrolein) followed by propene (acrolein) and ethene (acetaldehyde). In the oxidation of alkanes over V2O5, the rate of reaction was logarithmically well correlated with the C-H bond energies of alkane, suggesting that the rate-determining step is H-abstraction from alkane. In both cases of using MoO3 and V2O5, a co-presence of gaseous oxygen with hydrocarbons resulted in decreasing selectivity of the aldehydes. It is likely that the oxygen species derived from the lattice oxygen of YSZ migrates to MoO3 and V2O5 and the activity for the selective oxidation of hydrocarbons depends on the nature of each metal oxide catalyst.
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
ST yttria stabilized zirconia oxidn hydrocarbons oxygenate molybdenum vanadium oxide
IT Fuel cells
(solid electrolyte; yttria-stabilized zirconia aided oxidation of C2-C4 hydrocarbons into oxygenates over MoO3 or V2O5)
IT Oxidation catalysts
(yttria-stabilized zirconia aided oxidation of C2-C4 hydrocarbons into oxygenates over MoO3 or V2O5)
IT 1313-27-5, Molybdenum oxide, uses 1314-62-1, Vanadium oxide (V2O5), uses RL: CAT (Catalyst use); USES (Uses)
(yttria-stabilized zirconia aided oxidation of C2-C4 hydrocarbons into oxygenates over MoO3 or V2O5)
IT 1314-23-4, Zirconia, uses 1314-36-9, Yttria, uses RL: DEV (Device component use); USES (Uses)
(yttria-stabilized zirconia aided oxidation of C2-C4 hydrocarbons into oxygenates over MoO3 or V2O5)
IT 67-64-1P, Acetone, preparation 75-07-0P, Acetaldehyde, preparation 78-85-3P 107-02-8P, 2-Propenal, preparation 124-38-9P, Carbon dioxide, preparation 630-08-0P, Carbon monoxide, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(yttria-stabilized zirconia aided oxidation of C2-C4 hydrocarbons into oxygenates over MoO3 or V2O5)
IT 74-85-1, Ethylene, reactions 115-07-1, Propylene, reactions 115-11-7, Isobutylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(yttria-stabilized zirconia aided oxidation of C2-C4 hydrocarbons into

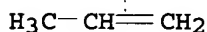
oxygenates over MoO3 or V2O5)
IT 67-64-1P, Acetone, preparation 107-02-8P, 2-Propenal,
preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(yttria-stabilized zirconia aided oxidation of C2-C4 hydrocarbons into
oxygenates over MoO3 or V2O5)
RN 67-64-1 HCAPLUS
CN 2-Propanone (CA INDEX NAME)



RN 107-02-8 HCAPLUS
CN 2-Propenal (9CI) (CA INDEX NAME)



IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(yttria-stabilized zirconia aided oxidation of C2-C4 hydrocarbons into
oxygenates over MoO3 or V2O5)
RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 14 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:182214 HCAPLUS
DN 136:218635
TI Cumene isopropylation manufacture process using purified benzene and
propylene feedstock streams and methods for purification
of the feedstocks
IN Wu, Albert H.; Wei, James T.
PA Sunoco, Inc. (R&M), USA
SO U.S., 5 pp., Cont.-in-part of U.S. Ser. No. 359,556, abandoned.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6355851	B1	20020312	US 2000-711285	20001113
	WO 2002057204	A1	20020725	WO 2001-US47385	20011107
	W: AE, AG, AL, AU, BA, BB, BG, BR, BZ, CA, CN, CO, CR, CU, CZ, DM, DZ, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MA, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TT, UA, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRAI US 1999-359556 B2 19990722
US 2000-711285. A 20001113

AB A zeolite-catalyzed cumene synthesis process is presented in which the benzene and propylene feedstocks are pre-treated to remove **catalyst** poisons. The benzene feedstock is pre-treated under pressure by contact with a hot clay bed at 200-500°, followed by distillation of the benzene feedstock to sep. the benzene from the higher-mol.-weight materials formed from olefinic poisons during the hot-clay treatment. The benzene feed is also subjected to a cold clay treatment where the benzene distillate is contacted with an ambient-temperature clay.

The

propylene feedstock is pre-treated by contact with alumina to remove trace sodium compds. and moisture, a mol. sieve to remove moisture, and two modified aluminas to remove **catalyst** poisons. The pre-treated propylene and benzene feedstocks are then reacted in the presence of a zeolite **catalyst** (e.g., MCM-22 zeolite) to form cumene without causing rapid degradation of the **catalyst**'s activity.

IC ICM C07C002-66

INCL 585448000

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 25, 48, 67

ST isopropylation benzene manuf cumene; propylene purifn benzene
isopropylation manuf cumene; benzene purifn isopropylation manuf cumene;
zeolite isopropylation **catalyst** poisoning inhibition manuf
cumene

IT Isopropylation **catalysts**

(MCM-22 zeolites for the conversion of purified benzene with purified propylene into cumene)

IT Polymerization **catalysts**

(clays for the removal of unsatd. impurities in benzene streams to be used in the manufacture of cumene)

IT Clays, processes

RL: EPR (Engineering process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(for the purification of benzene in the manufacture of cumene)

IT Molecular sieves

(for the purification of propylene in the manufacture of cumene)

IT Zeolite MCM-22

RL: CAT (**Catalyst** use); EPR (Engineering process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(isopropylation **catalysts** for the conversion of purified benzene with purified propylene into cumene)

IT Adsorbents

(mol. sieves and alumina for the removal of moisture from propylene in the manufacture of cumene)

IT Distillation

(of clay-treated purified benzene in the manufacture of cumene)

IT Isopropylation

(of purified benzene with purified propylene into cumene)

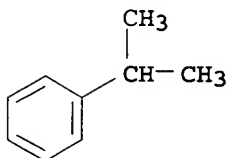
IT 7732-18-5, Water, processes

RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); REM (Removal or disposal); PROC (Process)
(absorptive removal from propylene feedstocks in the manufacture of cumene)

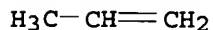
IT 98-82-8P, Cumene

RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (**Preparation**); PROC (Process)
(cumene isopropylation manufacture process using purified benzene and propylene feedstock streams and methods for purification of the feedstocks)

- IT 115-07-1P, Propene, preparation
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); PRP (Properties); PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); PROC (Process); **RACT (Reactant or reagent)**
(cumene isopropylation manufacture process using purified benzene and **propylene feedstock streams** and methods for purification of the feedstocks)
- IT 71-43-2P, Benzene, preparation
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); PROC (Process); **RACT (Reactant or reagent)**
(cumene isopropylation manufacture process using purified benzene and **propylene feedstock streams** and methods for purification of the feedstocks)
- IT 1344-28-1, Alumina, processes
RL: EPR (Engineering process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); **USES (Uses)**
(for the purification of propylene in the manufacture of cumene)
- IT 98-82-8P, Cumene
RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); **PREP (Preparation)**; PROC (Process)
(cumene isopropylation manufacture process using purified benzene and **propylene feedstock streams** and methods for purification of the feedstocks)
- RN 98-82-8 HCAPLUS
CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



- IT 115-07-1P, Propene, preparation
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); PRP (Properties); PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); PROC (Process); **RACT (Reactant or reagent)**
(cumene isopropylation manufacture process using purified benzene and **propylene feedstock streams** and methods for purification of the feedstocks)
- RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 15 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:107935 HCAPLUS
DN 136:169415
TI Integrated process for the production of cumene from propane and benzene.

IN Paggini, Alberto; Sanfilippo, Domenico; Picciotto, Elena
 PA Snamprogetti S.p.A., Italy
 SO U.S. Pat. Appl. Publ., 4 pp.
 CODEN: USXXCO

DT Patent
 LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002016520	A1	20020207	US 2001-879190	20010613
	IT 2000MI1326	A1	20011214	IT 2000-MI1326	20000614
	IT 1318575	B1	20030827		
	CA 2349900	A1	20011214	CA 2001-2349900	20010607
	DE 10127720	A1	20020228	DE 2001-10127720	20010607
	DE 10127720	C2	20020718		
	RU 2200726	C2	20030320	RU 2001-117545	20010613
PRAI	IT 2000-MI1326	A	20000614		

AB An integrated process for the preparation of cumene comprises dehydrogenating a stream of propane to propylene in a dehydrogenation unit, eliminating the H₂ and possible byproducts from the product stream, sending the stream containing 25-40 weight% propylene to an alkylation unit together with a stream of benzene with a molar ratio benzene/propylene = 8-10:1, distilling the alkylation product in a first distillation column to recover a light fraction of propane which is recycled to the dehydrogenation, and a heavy fraction which is distilled in a second distillation column to recover benzene at the head (recycled to the alkylation unit), and cumene with a purity of >99% at the tail. An apparatus diagram is given.

IC ICM C07C002-64

INCL 585323000

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
 Section cross-reference(s): 47

ST cumene prepn; propane dehydrogenation; benzene alkylation propene

IT Alkylation

(alkylation of benzene with propene; integrated process for the production of cumene from propane and benzene)

IT Alkali metal oxides

Zeolites (synthetic), uses

RL: CAT (Catalyst use); USES (Uses)

(dehydrogenation catalyst; integrated process for the production of cumene from propane and benzene)

IT Dehydrogenation

(dehydrogenation of propane; integrated process for the production of cumene from propane and benzene)

IT Apparatus

(integrated process for the production of cumene from propane and benzene)

IT 1308-38-9, Dichromium trioxide, uses 7440-06-4, Platinum, uses

12024-21-4, Gallium oxide 21651-19-4, Tin monoxide

RL: CAT (Catalyst use); USES (Uses)

(dehydrogenation catalyst; integrated process for the production of cumene from propane and benzene)

IT 115-07-1P, Propylene, preparation

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(integrated process for the production of cumene from propane and benzene)

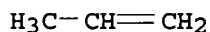
IT 98-82-8P, Cumene

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

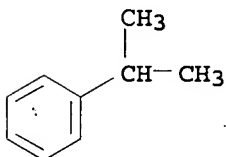
(integrated process for the production of cumene from propane and benzene)

IT 71-43-2, Benzene, reactions 74-98-6, Propane, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
 (integrated process for the production of cumene from propane and benzene)
 IT 115-07-1P, Propylene, preparation
 RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic
 preparation); PREP (Preparation); RACT (Reactant or reagent)
 (integrated process for the production of cumene from propane and benzene)
 RN 115-07-1 HCAPLUS
 CN 1-Propene (9CI) (CA INDEX NAME)



IT 98-82-8P, Cumene
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (integrated process for the production of cumene from propane and benzene)
 RN 98-82-8 HCAPLUS
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L31 ANSWER 16 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2001:523517 HCAPLUS
 DN 135:93006
 TI Procedure for processing alkene and oxygen comprehensive mixtures from
 epoxidation reactions
 IN Teles, Joaquim Henrique; Rehfinger, Alwin; Bassler, Peter; Rieber,
 Norbert; Hefner, Werner; Wenzel, Anne; Rudolf, Peter
 PA Basf A.-G., Germany
 SO Ger. Offen., 8 pp.
 CODEN: GWXXBX
 DT Patent
 LA German
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10001401	A1	20010719	DE 2000-10001401	20000114
	CA 2396406	A1	20010719	CA 2001-2396406	20010112
	WO 2001051475	A1	20010719	WO 2001-EP347	20010112
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 2001028468	A5	20010724	AU 2001-28468	20010112
	EP 1248773	A1	20021016	EP 2001-942361	20010112
	EP 1248773	B1	20050525		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

JP 2003519690	T	20030624	JP 2001-551857	20010112
AT 296297	T	20050615	AT 2001-942361	20010112
ES 2241833	T3	20051101	ES 2001-1942361	20010112
US 2003004387	A1	20030102	US 2002-169102	20020712
US 6712942	B2	20040330		
ZA 2002005591	A	20031003	ZA 2002-5591	20020712
PRAI DE 2000-10001401	A	20000114		
WO 2001-EP347	W	20010112		

AB A procedure for processing an epoxidn. (e.g., propylene oxide manufacture) reaction mixture **stream**, comprehensively containing an alkene and oxygen, in which (i) oxygen nondistillatively is removed from the mixture, and (ii) from the mixture (G2) the alkene distillate is removed.

IC ICM C07C007-148
ICS C07C007-04; C07C011-00; C07C011-06; C07D301-19

CC 35-2 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 45, 48

ST epoxidn reaction mixt alkene recovery; methyloxirane manuf reaction mixt propene recovery

IT Hydrocarbons, preparation
RL: PUR (Purification or recovery); REM (Removal or disposal); PREP (Preparation); PROC (Process)
(oxy; in a procedure for processing alkene and oxygen comprehensive mixts. from epoxidn. reactions)

IT Epoxidation
(procedure for processing alkene and oxygen comprehensive mixts. from epoxidn. reactions)

IT Epoxides
RL: MSC (Miscellaneous)
(procedure for processing alkene and oxygen comprehensive mixts. from epoxidn. reactions)

IT Alkenes, preparation
RL: PUR (Purification or recovery); PREP (Preparation)
(procedure for processing alkene and oxygen comprehensive mixts. from epoxidn. reactions)

IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(catalyst in a procedure for processing alkene and oxygen comprehensive mixts. from epoxidn. reactions)

IT 75-56-9P, Methyloxirane, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(procedure for processing alkene and oxygen comprehensive mixts. from epoxidn. reactions)

IT 115-07-1P, Propene, preparation
RL: PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(procedure for processing alkene and oxygen comprehensive mixts. from epoxidn. reactions)

IT 7722-84-1, Hydrogen peroxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(procedure for processing alkene and oxygen comprehensive mixts. from epoxidn. reactions)

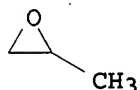
IT 1344-28-1, γ -Alumina, uses
RL: CAT (Catalyst use); USES (Uses)
(γ -, support; catalyst in a procedure for processing alkene and oxygen comprehensive mixts. from epoxidn. reactions)

IT 75-56-9P, Methyloxirane, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(procedure for processing alkene and oxygen comprehensive mixts. from

epoxidn. reactions)

RN 75-56-9 HCAPLUS

CN Oxirane, 2-methyl- (CA INDEX NAME)



IT 115-07-1P, Propene, preparation

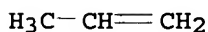
RL: PUR (Purification or recovery); RCT (Reactant); PREP (Preparation);

RACT (Reactant or reagent)

(procedure for processing alkene and oxygen comprehensive mixts. from epoxidn. reactions)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 17 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2001:112320 HCAPLUS

DN 134:164826

TI Manufacture of acrolein and acrolein derivatives from Diels-Alder reaction or Michael addition

IN Etzkorn, William George; Galley, Richard A.; Snead, Thomas E.; Brockwell, Jonathan Lester; Young, Mark Anderson; Maher, John Michael; Warren, Barbara Knight

PA Union Carbide Chemicals and Plastics Technology Corporation, USA

SO U.S., 11 pp., Cont.-in-part of WO9736848.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	US 6187963	B1	20010213	US 1998-169798	19981009
	WO 9736848	A1	19971009	WO 1997-US5100	19970327
	W: GH, KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	RW: AU, BB, BG, BR, CA, CN, CZ, HU, IS, JP, KP, KR, LK, LR, LV, MK, MX, NO, NZ, PL, SG, SI, TR, TT, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	EP 891316	A1	19990120	EP 1997-917687	19970327
	EP 891316	B1	20030521		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI				
PRAI	EP 1997-917687	A	19970327		
	WO 1997-US5100	A2	19970327		
	US 1996-14507P	P	19960401		
	US 1996-14510P	P	19960401		
	US 1996-14678P	P	19960401		

AB A process for producing an acrolein derivative comprises (i) passing a propylene feed stream comprising propylene, oxygen, and a recycle gas comprising propane, oxygen, and at least one of carbon monoxide and carbon dioxide to an acrolein reaction zone wherein

the propylene feed stream is contacted with an acrolein reaction catalyst at conditions effective to promote the formation of acrolein to provide an acrolein effluent stream comprising acrolein, propane, acetaldehyde and water; (ii) passing the acrolein effluent stream to an acrolein separation zone wherein the acrolein effluent stream is partially condensed to provide a liquid acrolein product stream comprising acrolein, acetaldehyde, and water and a recycle gas stream comprising the recycle gas; (iii) passing the acrolein product stream and a co-reactant capable of undergoing a Diels-Alder reaction or Michael addition with acrolein to an acrolein derivative reaction zone and contacting the acrolein and co-reactant under conditions effective to convert the acrolein and the co-reactant into an acrolein derivative; and (iv) recycling at least a portion of the recycle gas stream to the acrolein reaction zone. The process is characterized in that the propylene feed stream comprises an amount of propane of from about 5 to 70 volume% and effective to provide a propylene-to-acrolein reaction efficiency of from about 75 to 90 mol%.

IC C07C027-10; C07C045-27; C07C045-32

INCL 568469900

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 23

ST acrolein deriv manuf; Diels Alder reaction acrolein; Michael addn acrolein

IT Diels-Alder reaction

Dimerization

Michael reaction

(manufacture of acrolein and acrolein derivs. from Diels-Alder reaction or Michael addition)

IT 75-07-0P, Acetaldehyde, preparation

RL: BYP (Byproduct); PREP (Preparation)

(manufacture of acrolein and acrolein derivs. from Diels-Alder reaction or Michael addition)

IT 100-73-2P, 2-Formyl-3,4-dihydro-2H-pyran 108-99-6P, β -Picoline
110-86-1P, Pyridine, preparation 111-30-8P, Glutaraldehyde 504-63-2P,
1,3-Propanediol 1321-16-0P, Tetrahydrobenzaldehyde 3268-49-3P,
3-(Methylthio)propanal 31906-04-4P, 4-(4-Hydroxy-4-methylpentyl)-3-
cyclohexene-1-carboxaldehyde 75454-86-3P 84315-07-1P

RL: IMF (Industrial manufacture); PREP (Preparation)

(manufacture of acrolein and acrolein derivs. from Diels-Alder reaction or Michael addition)

IT 107-02-8P, Acrolein, preparation 2134-29-4P,
3-Hydroxypropionaldehyde 4454-05-1P, 2-Methoxy-3,4-dihydro-2H-pyran

RL: IMF (Industrial manufacture); RCT (Reactant); PREP

(Preparation); RACT (Reactant or reagent)

(manufacture of acrolein and acrolein derivs. from Diels-Alder reaction or Michael addition)

IT 56-81-5, 1,2,3-Propanetriol, reactions 57-55-6, Propylene glycol,
reactions 64-17-5, Ethanol, reactions 64-19-7, Acetic acid, reactions
65-85-0, Benzoic acid, reactions 67-56-1, Methanol, reactions 67-63-0,
Isopropanol, reactions 74-93-1, Methyl mercaptan, reactions 79-09-4,
Propionic acid, reactions 106-99-0, Butadiene, reactions 107-18-6,
Allyl alcohol, reactions 107-21-1, Ethylene glycol, reactions
107-25-5, Methyl vinyl ether 108-24-7, Acetic anhydride 115-07-1
, Propylene, reactions 115-77-5, Pentaerythritol, reactions 123-35-3,
Myrcene 543-39-5 7664-41-7, Ammonia, reactions 7732-18-5, Water,
reactions 30700-92-6

RL: RCT (Reactant); RACT (Reactant or reagent)

(manufacture of acrolein and acrolein derivs. from Diels-Alder reaction or Michael addition)

IT 107-02-8P, Acrolein, preparation

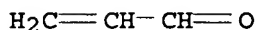
RL: IMF (Industrial manufacture); RCT (Reactant); PREP

(Preparation); RACT (Reactant or reagent)

(manufacture of acrolein and acrolein derivs. from Diels-Alder reaction or Michael addition)

RN 107-02-8 HCAPLUS

CN 2-Propenal (9CI) (CA INDEX NAME)



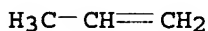
IT 115-07-1, Propylene, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(manufacture of acrolein and acrolein derivs. from Diels-Alder reaction or Michael addition)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 18 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:909250 HCAPLUS

DN 134:43711

TI Oxidative processes for the manufacture of acrolein from propylene and oxygen

IN Etzkorn, William George; Brockwell, Jonathan Lester; Young, Mark Anderson; Maher, John Michael; Warren, Barbara Knight

PA Union Carbide Chemicals and Plastics Technology Corporation, USA

SO U.S., 10 pp., Cont.-in-part of Appl. No. PCT/US97/05100.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6166263	A	20001226	US 1998-169335	19981009
	WO 9736848	A1	19971009	WO 1997-US5100	19970327
	W:	GH, KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG			
	RW:	AU, BB, BG, BR, CA, CN, CZ, HU, IS, JP, KP, KR, LK, LR, LV, MK, MX, NO, NZ, PL, SG, SI, TR, TT, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
PRAI	WO 1997-US5100	A2	19970327		
	US 1996-14507P	P	19960401		
	US 1996-14510P	P	19960401		
	US 1996-14678P	P	19960401		

AB Acrolein is produced in high yield and selectivity in a process comprising: (i) passing a **propylene feedstream** comprising **propylene**, oxygen and a recycle gas comprising propane, oxygen and carbon monoxide and/or carbon dioxide to an acrolein reaction zone where the **propylene feedstream** is contacted with an acrolein reaction **catalyst** to provide an acrolein effluent stream comprising acrolein, propane, acetaldehyde and water; (ii) passing the acrolein effluent stream to an acrolein separation zone where the acrolein effluent stream is partially condensed to provide a

liquid acrolein product stream comprising acrolein, acetaldehyde and water and a recycle gas stream comprising the recycle gas; and (iii) recycling a portion of the recycle gas stream to the acrolein reaction zone. The **propylene feedstream** comprises 5-70 volume% propane and is effective to provide a propylene-to-acrolein reaction efficiency of 75-90 mol%. The presence of propane in the propylene-to-acrolein reaction can enhance the efficiency of the processes.

IC C07C045-32

INCL 568469900

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 23, 48

ST acrolein manuf propylene oxidn

IT Oxidation

(gas-phase; manufacture of acrolein from propylene and oxygen via)

IT Addition reaction

(of acrolein)

IT 67-56-1, Methanol, reactions 107-18-6, Allyl alcohol, reactions
107-25-5, Vinyl methyl ether 115-77-5, Pentaerythritol, reactions
7732-18-5, Water, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(addition reaction of acrolein with)

IT 74-93-1, Methanethiol, reactions 106-99-0, Butadiene, reactions
543-39-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(addition reactions of acrolein with)

IT 75-07-0P, Acetaldehyde, preparation

RL: BYP (Byproduct); PREP (Preparation)

(oxidative processes for the manufacture of acrolein from propylene and oxygen)

IT 107-02-8P, Acrolein, preparation

RL: IMF (Industrial manufacture); RCT (Reactant); PREP

(Preparation); RACT (Reactant or reagent)

(oxidative processes for the manufacture of acrolein from propylene and oxygen)

IT 74-98-6, Propane, uses

RL: MOA (Modifier or additive use); USES (Uses)

(oxidative processes for the manufacture of acrolein from propylene and oxygen)

IT 124-38-9, Carbon dioxide, uses 630-08-0, Carbon monoxide, uses

RL: NUU (Other use, unclassified); USES (Uses)

(oxidative processes for the manufacture of acrolein from propylene and oxygen)

IT 115-07-1, Propene, reactions 7782-44-7, Oxygen, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidative processes for the manufacture of acrolein from propylene and oxygen)

IT 2134-29-4P, 3-Hydroxypropionaldehyde

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reaction of)

IT 111-30-8P, Glutaraldehyde

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of)

IT 78-19-3P 100-73-2P, 2-Formyl-3,4-dihydro-2H-pyran 504-63-2P,

1,3-Propanediol 1321-16-0P, Tetrahydrobenzaldehyde 2806-84-0P,

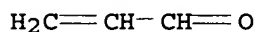
3-(Methoxy)propionaldehyde 3268-49-3P 4454-05-1P, 2-Methoxy-3,4-

dihydro-2H-pyran 31906-04-4P, 4-(4-Hydroxy-4-methylpentyl)-3-cyclohexene-

1-carboxaldehyde 84315-07-1P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of)
IT 107-02-8P, Acrolein, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP
(Preparation); RACT (Reactant or reagent)
(oxidative processes for the manufacture of acrolein from propylene and
oxygen)
RN 107-02-8 HCAPLUS
CN 2-Propenal (9CI) (CA INDEX NAME)



IT 115-07-1, Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidative processes for the manufacture of acrolein from propylene and
oxygen)
RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 19 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:260260 HCAPLUS

DN 132:295369

TI Process for oxidizing an organic compound having at least one C-C double
bond

IN Muller, Ulrich; Grosch, Georg Heinrich; Stein, Bernd; Rieber, Norbert

PA BASF Aktiengesellschaft, Germany

SO PCT Int. Appl., 32 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000021945	A1	20000420	WO 1999-EP7738	19991014
	W: AL, AU, BG, BR, BY, CA, CN, CZ, GE, HU, ID, IL, IN, JP, KR, KZ, LT, LV, MK, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, UA, US, ZA, AM, AZ, KG, MD, TJ, TM				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	DE 19847629	A1	20000420	DE 1998-19847629	19981015
	CA 2346888	A1	20000420	CA 1999-2346888	19991014
	AU 9962027	A	20000501	AU 1999-62027	19991014
	BR 9914569	A	20010703	BR 1999-14569	19991014
	EP 1121350	A1	20010808	EP 1999-970389	19991014
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002527428	T	20020827	JP 2000-575851	19991014
	IN 2001CN00529	A	20050520	IN 2001-CN529	20010412
	US 6348607	B1	20020219	US 2001-806514	20010416
PRAI	DE 1998-19847629	A	19981015		
	WO 1999-EP7738	W	19991014		

AB An organic compound having a C:C bond or a mixture of ≥ 2 such compds. is

oxidized by a process which includes the following step: reaction of the organic compd(s). with a medium containing O₂ and CO in the presence of a heterogeneous **catalyst**. Thus, Si(OEt)₄ 504, Ti(OPr-iso)₄ 70.4, EtOH 720, iso-PrOH 146, dodecylamine 120, and 10% HCl 17.6 g were stirred in 1560 g H₂O for 20 h, the precipitate was filtered, washed, dried, calcined

5 h

at 500° in air, and treated with H₂AuCl₄ in aqueous suspension, and the product was recovered and calcined 12 h at 400° in air to give a **catalyst** containing 0.87% Au, 6.2% Ti, and 25 ppm Cl. When a mixture of propylene 10, O₂ 20, CO 5, and Ar 10 mL/min was saturated with water vapor and passed over 2 g of the **catalyst** in a tubular reactor at 60°, the product gas after 3 h contained propylene oxide 200, acrolein 10, acetone 6, and propionaldehyde <5 ppm, whereas when the CO was omitted from the feed **stream** no detectable **propylene** oxide (i.e., <5 ppm) or acrolein or acetone was produced.

IC ICM C07D301-08

ICS C07D301-10

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 35

ST propylene epoxidn carbon monoxide; propylene oxide manuf gas phase

IT Oxidation

(of unsatd. organic compds. by mol. oxygen in presence of carbon monoxide)

IT 67-64-1P, Acetone, preparation 107-02-8P, Acrolein, preparation

RL: BYP (Byproduct); **PREP (Preparation)**

(epoxidn. of propylene)

IT 7440-32-6, Titanium, uses 7440-57-5, Gold, uses

RL: **CAT (Catalyst use)**; **USES (Uses)**

(epoxidn. of propylene)

IT 75-56-9P, Propylene oxide, preparation

RL: IMF (Industrial manufacture); **PREP (Preparation)**

(epoxidn. of propylene)

IT 115-07-1, Propylene, reactions

RL: RCT (Reactant); **RACT (Reactant or reagent)**

(epoxidn. of propylene)

IT 630-08-0, Carbon monoxide, uses 1333-74-0, Hydrogen, uses

RL: NUU (Other use, unclassified); **USES (Uses)**

(in epoxidn. of propylene)

IT 78-10-4, Tetraethoxysilane 124-22-1, Dodecylamine 546-68-9,

Tetraisopropyl orthotitanate 16903-35-8, Tetrachloroauric acid

RL: RCT (Reactant); **RACT (Reactant or reagent)**(in preparation of propylene epoxidn. **catalyst**)

IT 7631-86-9, Silica, uses

RL: **CAT (Catalyst use)**; **USES (Uses)**

(support; epoxidn. of propylene)

IT 7732-18-5, Water, uses

RL: NUU (Other use, unclassified); **USES (Uses)**

(vapor; in epoxidn. of propylene)

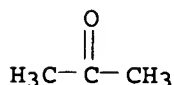
IT 67-64-1P, Acetone, preparation 107-02-8P, Acrolein, preparation

RL: BYP (Byproduct); **PREP (Preparation)**

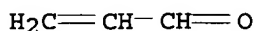
(epoxidn. of propylene)

RN 67-64-1 HCAPLUS

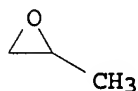
CN 2-Propanone (CA INDEX NAME)



RN 107-02-8 HCAPLUS
CN 2-Propenal (9CI) (CA INDEX NAME)



IT 75-56-9P, Propylene oxide, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(epoxidn. of propylene)
RN 75-56-9 HCAPLUS
CN Oxirane, 2-methyl- (CA INDEX NAME)



IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(epoxidn. of propylene)
RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 20 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:127583 HCAPLUS
DN 132:167975
TI Manufacture of acrolein and/or acrylic acid from propane
IN Machhammer, Otto; Tenten, Andreas; Jachow, Harald; Haupt, Susanne; Arnold, Heiko; Unverricht, Signe
PA BASF A.-G., Germany
SO Ger. Offen., 15 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19837518	A1	20000224	DE 1998-19837518	19980819
	WO 2000010960	A1	20000302	WO 1999-EP5791	19990810
	W: AL, AU, BG, BR, BY, CA, CN, CZ, GE, HR, HU, ID, IL, IN, JP, KR, KZ, LT, LV, MK, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, UA, US, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	AU 9955125	A1	20000314	AU 1999-55125	19990810
	EP 1109773	A1	20010627	EP 1999-941556	19990810
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	BR 9914611	A	20010807	BR 1999-14611	19990810
	JP 2002523389	T	20020730	JP 2000-566234	19990810

US 6388129 B1 20020514 US 2001-763223 20010220
PRAI DE 1998-19837518 A 19980819
WO 1999-EP5791 W 19990810

AB In the manufacture of acrolein and/or acrylic acid from propane, the propane in a first reaction stage is subjected to partial oxidative dehydrogenation under homogeneous and/or heterogeneous catalysis with O₂-enriched air to form propene, the product gas mixture formed in the first reaction stage is treated to remove at least some of the N, and the remaining gas is subjected to gas-phase catalytic oxidation to form acrolein and/or acrylic acid. Thus 15.4 mol/h 9:1 O-N mixture was combined with 79.7 mol/h of a recycle stream containing propane 87.7, propylene 0.4, O 4.2, N 2.1, H₂O 2.5, CO 0.8, CO₂ 1.9, and other 0.5 volume% and oxidized at 430°/2.2 bars in a fixed bed of mixed metal oxide catalyst to give a product stream (102.3 mol/h) containing propane 59.9, propylene 6.5, O 4.8, N 3.2, H₂O 16.7, CO 4.3, CO₂ 4.0, acrolein 0.2, and other 0.4 volume%, which was compressed to 36 bars, cooled to 70°, and passed through a 30-plate rectification column to remove 17.4 mol/h of a purge stream overhead. The remaining stream (89.4 mol/h) was combined with 13.6 mol/h 9:1 O-N mixture and 9.1 mol/h propane to give a propylene oxidation feed containing acrolein 0.2, propane 65.0, propylene 6.1, O 11.4, N 1.3, H₂O 15.9, and other 0.1 volume%, which was oxidized at 350°/2 bars over a 2nd mixed metal oxide catalyst to form acrolein and then mixed with an addnl. 2.4 mol/h 9:1 O-N mixture and oxidized to acrylic acid in a 3rd stage over a 3rd mixed metal oxide catalyst at 270°/1.8 bars, yielding a product stream (107.8 mol/h) containing acrolein 0.1, acrylic acid 5.2, AcOH 0.1, propane 64.9, propylene 0.3, O 3.0, N 1.5, H₂O 22.7, CO 0.6, CO₂ 1.4, and other 0.2 volume%, which was quenched and fractionated to produce 5.4 mol/h acrylic acid of ≥98% purity as well as the recycle stream and an acidic aqueous waste stream, for an overall yield of acrylic acid based on propane supplied of 59.3 mol%.

IC ICM C07C045-35
ICS C07C047-22; C07C057-055; C07C005-333; C07C011-06

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 23, 35

ST propane dehydrogenation oxidn; acrylic acid manuf gas phase oxidn;
acrolein manuf gas phase oxidn

IT Oxidation
(gas-phase, catalytic; in manufacture of acrolein and/or acrylic acid from propane)

IT Dehydrogenation
(oxidative; in manufacture of acrolein and/or acrylic acid from propane)

IT 79-10-7P, Acrylic acid, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(manufacture of acrolein and/or acrylic acid from propane)

IT 107-02-8P, Acrolein, preparation 115-07-1P, Propylene, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(manufacture of acrolein and/or acrylic acid from propane)

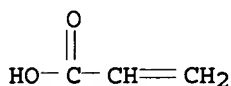
IT 74-98-6, Propane, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(manufacture of acrolein and/or acrylic acid from propane)

IT 7727-37-9, Nitrogen, processes
RL: REM (Removal or disposal); PROC (Process)
(separation from intermediate stream in manufacture of acrolein and/or acrylic acid from propane)

IT 79-10-7P, Acrylic acid, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(manufacture of acrolein and/or acrylic acid from propane)

RN 79-10-7 HCAPLUS

CN 2-Propenoic acid (9CI) (CA INDEX NAME)



IT 107-02-8P, Acrolein, preparation 115-07-1P, Propylene, preparation

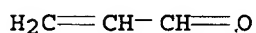
RL: IMF (Industrial manufacture); RCT (Reactant); PREP

(Preparation); RACT (Reactant or reagent)

(manufacture of acrolein and/or acrylic acid from propane)

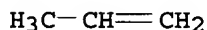
RN 107-02-8 HCAPLUS

CN 2-Propenal (9CI) (CA INDEX NAME)



RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 21 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1999:193877 HCAPLUS

DN 130:252779

TI Process stream purification in hydroperoxide manufacture

IN Lin, Shaw-Chan; Danner, Jeffery B.; Jubin, John C., Jr.

PA Arco Chemical Technology, L.P., USA

SO U.S., 4 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	US 5883268	A	19990316	US 1997-955412	19971023
PRAI	US 1997-955412		19971023		

AB Hydroperoxides, especially ethylbenzene hydroperoxide, suitable for epoxidizing an olefin, especially propylene, using a solid heterogeneous catalyst is prepared by (a) contacting crude ethylbenzene hydroperoxide with an aqueous solution of an alkali metal base, such as sodium carbonate, and separating a base-contaminated deacidified organic stream from an aqueous stream, (b) contacting the deacidified organic stream with water and separating the mixture into

an organic-contaminated aqueous phase and an organic phase having a reduced alkali

metal content, and (c) contacting the organic-contaminated aqueous phase with an

extractive hydrocarbon such as ethylbenzene, benzene, cyclohexane or C2-10 alkanes, and separating the mixture into a purified aqueous phase containing less organic

contaminants and an organic phase comprising the extractive hydrocarbon and organic impurities from the organic-contaminated aqueous phase. The aqueous base

treatment greatly reduces the deactivation of the solid **catalyst** in epoxidn.

IC ICM C07D301-19

INCL 549529000

CC 35-2 (Chemistry of Synthetic High Polymers)

ST ethylbenzene hydroperoxide purifn; propylene epoxidn **catalyst** activity hydroperoxide purity; alkali metal base purifn ethylbenzene hydroperoxide; sodium carbonate purifn ethylbenzene hydroperoxide

IT Alkali metal salts

RL: NUU (Other use, unclassified); USES (Uses)

(in process stream purification in ethylbenzene hydroperoxide manufacture

for reduced **catalyst** deactivation in epoxidn. of olefins)

IT Epoxidation **catalysts**

(process stream purification in ethylbenzene hydroperoxide manufacture for reduced **catalyst** deactivation in epoxidn. of olefins)

IT 71-43-2, Benzene, uses 100-41-4, Ethylbenzene, uses 110-82-7, Cyclohexane, uses

RL: NUU (Other use, unclassified); USES (Uses)

(in process stream purification in ethylbenzene hydroperoxide manufacture)

IT 497-19-8, Sodium carbonate, uses

RL: NUU (Other use, unclassified); USES (Uses)

(in process stream purification in ethylbenzene hydroperoxide manufacture

for reduced **catalyst** deactivation in epoxidn. of olefins)

IT 115-07-1, Propylene, reactions

RL: RCT (Reactant); **RACT (Reactant or reagent)**

(process stream purification in ethylbenzene hydroperoxide manufacture for reduced **catalyst** deactivation in epoxidn.)

IT 75-56-9P, Propylene oxide, preparation

RL: IMF (Industrial manufacture); **PREP (Preparation)**

(process stream purification in ethylbenzene hydroperoxide manufacture for reduced **catalyst** deactivation in epoxidn. of olefins)

IT 3071-32-7P, Ethylbenzene hydroperoxide

RL: PUR (Purification or recovery); **PREP (Preparation)**

(process stream purification in hydroperoxide manufacture)

IT 115-07-1, Propylene, reactions

RL: RCT (Reactant); **RACT (Reactant or reagent)**

(process stream purification in ethylbenzene hydroperoxide manufacture for reduced **catalyst** deactivation in epoxidn.)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



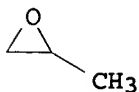
IT 75-56-9P, Propylene oxide, preparation

RL: IMF (Industrial manufacture); **PREP (Preparation)**

(process stream purification in ethylbenzene hydroperoxide manufacture for reduced **catalyst** deactivation in epoxidn. of olefins)

RN 75-56-9 HCAPLUS

CN Oxirane, 2-methyl- (CA INDEX NAME)



RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 22 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1999:136863 HCAPLUS

DN 130:184078

TI Process to alkylate an aromatic with a dilute **stream** comprising **propylene** and ethylene

IN Hendriksen, Dan E.; Lattner, James R.; Wristers, Jos P.

PA Exxon Chemical Patents Inc., USA

SO PCT Int. Appl., 26 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9908984	A1	19990225	WO 1998-US17075	19980818
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2293443	A1	19990225	CA 1998-2293443	19980818
	AU 9889120	A	19990308	AU 1998-89120	19980818
	AU 745785	B2	20020328		
	US 6063976	A	20000516	US 1998-135919	19980818
	EP 1005442	A1	20000607	EP 1998-940962	19980818
	EP 1005442	B1	20030402		
	R: BE, DE, ES, FR, GB, IT, NL, SE				
	JP 2001515056	T	20010918	JP 2000-509672	19980818
	ES 2197499	T3	20040101	ES 1998-940962	19980818
PRAI	US 1997-55999P	P	19970818		
	WO 1998-US17075	W	19980818		

AB The method comprises (a) contacting a first reaction mixture comprising an aromatic and a dilute **stream** comprising ethylene and **propylene** with a large pore microporous solid acid **catalyst**, preferably a large pore zeolite **catalyst**, which is effective to promote alkylation of the aromatic under first conditions effective to maintain a liquid phase comprising the aromatic and effective to cause the propylene to alkylate the aromatic but substantially ineffective to cause the ethylene to alkylate the aromatic, forming propylated aromatic and a second dilute stream comprising ethylene but substantially depleted of propylene, and (b) recovering the propylated aromatic

IC ICM C07C002-66

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 67

ST propylene benzene alkylation; zeolite alkylation **catalyst** benzene; cumene prepn propylene benzene alkylation; ethylene benzene alkylation; refinery offgas stream benzene alkylation

IT Silicoaluminophosphate zeolites

RL: CAT (Catalyst use); USES (Uses)

(SAPO-5, alkylation **catalysts**; alkylation of benzene with dilute **streams** containing **propylene** and ethylene)

IT Beta zeolites

Y zeolites

RL: CAT (Catalyst use); USES (Uses)
(alkylation catalysts; alkylation of benzene with dilute streams containing propylene and ethylene)

IT Alkylation
(alkylation of benzene with dilute streams containing propylene and ethylene)

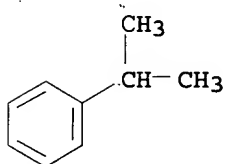
IT Alkylation catalysts
(zeolites; alkylation of benzene with dilute streams containing propylene and ethylene)

IT 98-82-8P, Cumene 100-41-4P, Ethylbenzene, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(alkylation of benzene with dilute streams containing propylene and ethylene)

IT 71-43-2, Benzene, reactions 74-85-1, Ethylene, reactions 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkylation of benzene with dilute streams containing propylene and ethylene)

IT 98-82-8P, Cumene
RL: IMF (Industrial manufacture); PREP (Preparation)
(alkylation of benzene with dilute streams containing propylene and ethylene)

RN 98-82-8 HCAPLUS
CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkylation of benzene with dilute streams containing propylene and ethylene)

RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

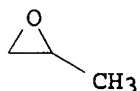
L31 ANSWER 23 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:34510 HCAPLUS
DN 130:95961
TI Epoxidation process using supported silver catalysts treated with carbon dioxide
IN Cooker, Bernard; Gaffney, Anne M.; Jewson, Jennifer D.; Kahn, Andrew P.
PA Arco Chemical Technology, L.P., USA
SO U.S., 8 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5856534	A	19990105	US 1997-993466	19971218
	CA 2310429	A1	19990701	CA 1998-2310429	19980831
	WO 9932471	A1	19990701	WO 1998-EP5515	19980831
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 9910227	A	19990712	AU 1999-10227	19980831
	EP 1040104	A1	20001004	EP 1998-952582	19980831
	EP 1040104	B1	20021120		
	R: BE, DE, ES, FR, GB, IT, NL				
	BR 9813687	A	20001010	BR 1998-13687	19980831
	JP 2001526279	T	20011218	JP 2000-525408	19980831
	ES 2184328	T3	20030401	ES 1998-952582	19980831
PRAI	US 1997-993466	A	19971218		
	WO 1998-EP5515	W	19980831		
AB	The catalytic performance of a supported silver catalyst in a propylene epoxidn. process is improved by first contacting the catalyst at an elevated temperature with a treatment stream comprised of carbon dioxide. The carbon dioxide-treated catalyst is thereafter contacted with a feedstream containing propylene, mol. oxygen, but essentially no carbon dioxide under conditions effective to form propylene oxide.				
IC	ICM C07D301-10				
INCL	549534000				
CC	35-2 (Chemistry of Synthetic High Polymers)				
ST	silver epoxidn catalyst propylene oxide manuf; carbon dioxide treatment silver epoxidn catalyst				
IT	Epoxidation (epoxidn. process using supported silver catalysts treated with carbon dioxide)				
IT	Epoxidation catalysts (supported; epoxidn. process using supported silver catalysts treated with carbon dioxide)				
IT	75-00-3, Ethyl chloride 298-14-6, Potassium bicarbonate 584-08-7, Potassium carbonate 1311-93-9 7440-22-4, Silver, uses 7757-79-1, Potassium nitrate, uses 7758-09-0, Potassium nitrite 20667-12-3, Silver (I) oxide 37349-36-3, Potassium tungstate				
	RL: CAT (Catalyst use); USES (Uses) (epoxidn. process using supported silver catalysts treated with carbon dioxide)				
IT	75-56-9P, Propylene oxide, preparation RL: IMF (Industrial manufacture); PREP (Preparation) (epoxidn. process using supported silver catalysts treated with carbon dioxide)				
IT	124-38-9, Carbon dioxide, uses RL: NUU (Other use, unclassified); USES (Uses) (epoxidn. process using supported silver catalysts treated with carbon dioxide)				
IT	115-07-1, Propylene, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (epoxidn. process using supported silver catalysts treated with carbon dioxide)				
IT	75-56-9P, Propylene oxide, preparation				

RL: IMF (Industrial manufacture); PREP (Preparation)
(epoxidn. process using supported silver catalysts treated
with carbon dioxide)

RN 75-56-9 HCAPLUS

CN Oxirane, 2-methyl- (CA INDEX NAME)

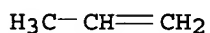


IT 115-07-1, Propylene, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(epoxidn. process using supported silver catalysts treated
with carbon dioxide)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 24 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1998:789137 HCAPLUS

DN 130:25444

TI Preparation of propylene oxide by direct epoxidation of propylene using
alkaline earth metal compound-supported silver catalysts
containing tungsten and potassium promoters

IN Kahn, Andrew P.; Gaffney, Anne M.

PA Arco Chemical Technology, L.P., USA; Arco Chemie Technologie Nederland
B.V.

SO PCT Int. Appl., 28 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9852931	A1	19981126	WO 1998-EP2422	19980423
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	US 5861519	A	19990119	US 1997-862457	19970523
	CA 2287078	A1	19981126	CA 1998-2287078	19980423
	AU 9874317	A	19981211	AU 1998-74317	19980423
	EP 983253	A1	20000308	EP 1998-921485	19980423
	EP 983253	B1	20020731		
	R: BE, DE, ES, FR, GB, IT, NL, SE				
	BR 9809129	A	20000801	BR 1998-9129	19980423
	JP 2001527563	T	20011225	JP 1998-549856	19980423
	ES 2181218	T3	20030216	ES 1998-921485	19980423

	CN 1102929	B	20030312	CN 1998-805334	19980423
	MX 9910772	A	20000430	MX 1999-10772	19991122
PRAI	US 1997-862457	A	19970523		
	WO 1998-EP2422	W	19980423		

AB The tungsten promoter and the potassium promoter are simultaneously introduced through the use of potassium tungstate. The **catalysts** exhibit unusually high propylene oxide productivity when CO₂ is present in the feedstream.

IC ICM C07D301-10
ICS B01J023-68

CC 35-2 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 27

ST potassium tungsten promoter silver epoxidn **catalyst**; propylene silver epoxidn **catalyst**; carbon dioxide **feedstream** **propylene** oxide productivity

IT Epoxidation **catalysts**
(preparation of propylene oxide by direct epoxidn. of propylene using supported silver **catalysts** containing tungsten and potassium promoters)

IT Alkaline earth compounds
RL: **CAT (Catalyst use)**; **USES (Uses)**
(preparation of propylene oxide by direct epoxidn. of propylene using supported silver **catalysts** containing tungsten and potassium promoters)

IT 298-14-6, Potassium bicarbonate 584-08-7, Potassium carbonate 7757-79-1, Potassium nitrate, uses 7758-09-0, Potassium nitrite 11120-01-7, Sodium tungstate 11120-25-5, Ammonium paratungstate
RL: **CAT (Catalyst use)**; **USES (Uses)**
(**catalyst** promoter; preparation of propylene oxide by direct epoxidn. of propylene using supported silver **catalysts** containing tungsten and potassium promoters)

IT 471-34-1, Calcium carbonate, uses 12049-50-2, Calcium titanate
RL: **CAT (Catalyst use)**; **USES (Uses)**
(**catalyst** support; preparation of propylene oxide by direct epoxidn. of propylene using supported silver **catalysts** containing tungsten and potassium promoters)

IT 124-38-9, Carbon dioxide, uses
RL: **NUU (Other use, unclassified)**; **USES (Uses)**
(preparation of propylene oxide by direct epoxidn. of propylene using supported silver **catalysts** and CO₂ feedstream)

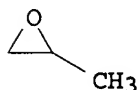
IT 7440-22-4, Silver, uses 37349-36-3, Potassium tungstate
RL: **CAT (Catalyst use)**; **USES (Uses)**
(preparation of propylene oxide by direct epoxidn. of propylene using supported silver **catalysts** containing tungsten and potassium promoters)

IT 75-56-9P, Propylene oxide, preparation
RL: **IMF (Industrial manufacture)**; **PREP (Preparation)**
(preparation of propylene oxide by direct epoxidn. of propylene using supported silver **catalysts** containing tungsten and potassium promoters)

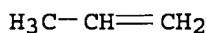
IT 115-07-1, Propylene, reactions
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**
(preparation of propylene oxide by direct epoxidn. of propylene using supported silver **catalysts** containing tungsten and potassium promoters)

IT 75-56-9P, Propylene oxide, preparation
RL: **IMF (Industrial manufacture)**; **PREP (Preparation)**
(preparation of propylene oxide by direct epoxidn. of propylene using supported silver **catalysts** containing tungsten and potassium promoters)

RN 75-56-9 HCAPLUS
CN Oxirane, 2-methyl- (CA INDEX NAME)



IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); **RACT (Reactant or reagent)**
(preparation of propylene oxide by direct epoxidn. of propylene using supported silver **catalysts** containing tungsten and potassium promoters)
RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 25 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1998:604733 HCAPLUS

DN 129:204425

TI Process and the effect of inert solvent use in the production of diisopropyl ether and isopropanol from propylene-rich feeds

IN Brown, Stephen H.; Trewella, Jeffrey C.

PA Mobil Oil Corporation, USA

SO U.S., 7 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5808161	A	19980915	US 1995-567389	19951204
PRAI	US 1995-567389		19951204		

AB Inert solvents (e.g., p-dioxane, 1,3-dioxane, di-Me ether, THF, etc.) are employed in a liquid-phase process for the production of octane-boosting iso-Pr alc. and diisopropyl ether from a **propylene-rich feedstream** and water using acidic zeolite **catalyst** particles. When the inert solvent is used, **oxygenate** production is enhanced and **catalyst** productivity is substantially increased.

IC ICM C07C041-00

ICS C07C029-00

INCL 568694000

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 23, 48, 51

ST isopropyl ether manuf propylene conversion; inert solvent usage isopropyl ether manuf; solvent effect isopropyl ether manuf

IT Alkenes, reactions

RL: RCT (Reactant); **RACT (Reactant or reagent)**

(C4+; solvent effect in the manufacture of secondary C4+ alcs. from)

IT Cation exchangers

(acidic; **catalysts** in the production of diisopropyl ether and isopropanol from propylene-rich feeds and the effect of inert solvents on increasing **oxygenate** production)

IT Beta zeolites
 Zeolite MCM-22
 Zeolite ZSM-35
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts in the production of diisopropyl ether and isopropanol from propylene-rich feeds and the effect of inert solvents on increasing oxygenate production)

IT Solvent effect
 (in the production of diisopropyl ether and isopropanol from propylene-rich feeds)

IT Alcohols, preparation
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (secondary, C4+; solvent effect in the manufacture of)

IT 1314-23-4, Zirconium oxide, uses
 RL: CAT (Catalyst use); USES (Uses)
 (on the effect of inert solvent use in the production of diisopropyl ether and isopropanol from propylene-rich feeds)

IT 67-63-0P, Isopropyl alcohol, preparation 108-20-3P, Diisopropyl ether
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (process and inert solvent use in the production of diisopropyl ether and isopropanol from propylene-rich feeds)

IT 115-07-1, Propylene, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (process and inert solvent use in the production of diisopropyl ether and isopropanol from propylene-rich feeds)

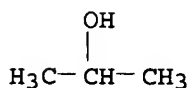
IT 123-91-1, p-Dioxane, uses 505-22-6, 1,3-Dioxane
 RL: MOA (Modifier or additive use); NUU (Other use, unclassified); USES (Uses)
 (solvent; on the effect of inert solvent use in the production of diisopropyl ether and isopropanol from propylene-rich feeds)

IT 109-99-9, Thf, uses 115-10-6, Dimethyl ether 126-33-0, Sulfolane
 RL: NUU (Other use, unclassified); USES (Uses)
 (solvent; on the effect of inert solvent use in the production of diisopropyl ether and isopropanol from propylene-rich feeds)

IT 107-21-1D, Ethylene glycol, dialkyl ethers
 RL: NUU (Other use, unclassified); USES (Uses)
 (solvents; on the effect of inert solvent use in the production of diisopropyl ether and isopropanol from propylene-rich feeds)

IT 67-63-0P, Isopropyl alcohol, preparation
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (process and inert solvent use in the production of diisopropyl ether and isopropanol from propylene-rich feeds)

RN 67-63-0 HCAPLUS
 CN 2-Propanol (9CI) (CA INDEX NAME)



IT 115-07-1, Propylene, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (process and inert solvent use in the production of diisopropyl ether and isopropanol from propylene-rich feeds)

RN 115-07-1 HCAPLUS
 CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 26 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1998:300629 HCAPLUS

DN 128:323134

TI Process for producing diisopropyl ether from propane

IN Marker, Terry L.; Muldoon, Brian S.; Glover, Bryan K.; Vora, Bipin V.

PA UOP Inc., USA

SO U.S., 9 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5750800	A	19980512	US 1995-556117	19951109
PRAI	US 1995-556117		19951109		

AB In the title process, in a first reaction zone propane in a feedstock, after any hydrocarbons containing four or more carbon atoms are removed via fractionation, is catalytically dehydrogenated to form propylene. After removing the hydrogen, the propane and propylene mixture generated in the first reaction zone is separated into a propane-enriched stream and a propylene-enriched stream containing ≥ 65 mass% propylene. The propane-enriched stream is recycled to the feedstock fractionation unit, and the propylene of the propylene-enriched stream is reacted with water in a second reaction zone in the presence of an acidic catalyst to form iso-Pr alc. which is concurrently reacted with propylene to produce diisopropyl ether. A portion of the second reaction zone effluent is recycled to the second reaction zone, and the remainder may be collected or further separated to provide a high-purity diisopropyl ether product. Process flow diagrams are presented.

IC ICM C07C041-00

INCL 568678000

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 23, 48, 51

ST isopropyl ether manuf propane conversion; dehydrogenation propane manuf isopropyl ether; hydration propene manuf isopropyl ether; isopropanol etherification manuf isopropyl ether

IT Dehydrogenation

Distillation

Etherification

Hydration, chemical

(process for producing diisopropyl ether from propane via)

IT 1333-74-0P, Hydrogen, preparation

RL: BYP (Byproduct); REM (Removal or disposal); PREP (Preparation); PROC (Process)

(process for producing diisopropyl ether from propane)

IT 108-20-3P, Diisopropyl ether

RL: IMF (Industrial manufacture); PREP (Preparation)

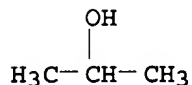
(process for producing diisopropyl ether from propane)

IT 67-63-0P, 2-Propanol, preparation 115-07-1P, Propene, preparation

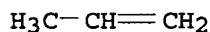
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(process for producing diisopropyl ether from propane)

IT 74-98-6, Propane, reactions 7732-18-5, Water, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for producing diisopropyl ether from propane)
IT 67-63-0P, 2-Propanol, preparation 115-07-1P, Propene,
preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP
(Preparation); RACT (Reactant or reagent)
(process for producing diisopropyl ether from propane)
RN 67-63-0 HCAPLUS
CN 2-Propanol (9CI) (CA INDEX NAME)



RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 27 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1998:263259 HCAPLUS
DN 128:309690
TI Two-stage process for producing diisopropyl ether using catalytic
distillation
IN Marker, Terry L.; Funk, Gregory A.; Barger, Paul T.; Hammershaimb, Harold
U.
PA UOP Inc., USA
SO U.S., 6 pp., Cont.-in-part of U.S. 5,504,258.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5744645	A	19980428	US 1996-625859	19960401
	US 5504258	A	19960402	US 1994-311993	19940926
PRAI	US 1994-311993	A2	19940926		

AB A process for the efficient production of diisopropyl ether, where catalytic
distillation is used to increase the yield of product beyond thermodyn.
equilibrium

limitations, is described. In a hydration zone, propylene is reacted with
water in the presence of a catalyst (e.g., acidic cation
exchangers or zeolites) to effect hydration to produce an effluent
stream containing water, unreacted propylene, and iso-Pr
alc., and then, in an etherification zone, a portion of the effluent
stream is further reacted by catalytic distillation in the presence of a
catalyst (e.g., acidic cation exchangers or zeolites) to effect
reaction of propylene and iso-Pr alc. to form diisopropyl ether while
concurrently separating an organic portion containing the diisopropyl ether
and an aqueous
portion, and collecting the organic portion containing the diisopropyl ether.

A

process flow diagram is presented.

IC ICM C07C041-00

INCL 565695000

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 23, 48

ST isopropyl ether manuf two step; etherification prepn isopropyl ether;
propylene hydration isopropyl ether manuf; catalytic distn isopropyl ether
manuf

IT Etherification
(a two-stage process for producing diisopropyl ether using catalytic
distillation)

IT Cation exchangers
(acidic; **catalysts** in a two-stage process for producing
diisopropyl ether using catalytic distillation)

IT Zeolites (synthetic), uses
RL: **CAT (Catalyst use)**; **USES (Uses)**
(acidic; **catalysts** in a two-stage process for producing
diisopropyl ether using catalytic distillation)

IT Distillation
(catalytic; two-stage process for producing diisopropyl ether using)

IT 7732-18-5P, Water, preparation
RL: **BYP (Byproduct)**; **RCT (Reactant)**; **PREP (Preparation)**; **RACT (Reactant or
reagent)**
(two-stage process for producing diisopropyl ether using catalytic
distillation)

IT 108-20-3P, Diisopropyl ether
RL: **IMF (Industrial manufacture)**; **PREP (Preparation)**
(two-stage process for producing diisopropyl ether using catalytic
distillation)

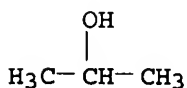
IT 67-63-0P, 2-Propanol, preparation
RL: **IMF (Industrial manufacture)**; **RCT (Reactant)**; **PREP
(Preparation)**; **RACT (Reactant or reagent)**
(two-stage process for producing diisopropyl ether using catalytic
distillation)

IT 115-07-1, Propene, reactions
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**
(two-stage process for producing diisopropyl ether using catalytic
distillation)

IT 67-63-0P, 2-Propanol, preparation
RL: **IMF (Industrial manufacture)**; **RCT (Reactant)**; **PREP
(Preparation)**; **RACT (Reactant or reagent)**
(two-stage process for producing diisopropyl ether using catalytic
distillation)

RN 67-63-0 HCAPLUS

CN 2-Propanol (9CI) (CA INDEX NAME)



IT 115-07-1, Propene, reactions
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**
(two-stage process for producing diisopropyl ether using catalytic
distillation)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)

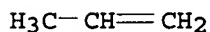


RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

- L31 ANSWER 28 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1998:255314 HCAPLUS
DN 129:4363
TI Formation of oxygenates in the propane oxidation over K+ modified Fe/SiO2
catalyst
AU Teng, Yonghong; Kobayashi, Tetsuhiko
CS Osaka National Research Institute, AIST, MITI, Osaka, 563, Japan
SO Chemistry Letters (1998), (4), 327-328
CODEN: CMLTAG; ISSN: 0366-7022
PB Chemical Society of Japan
DT Journal
LA English
AB Oxygenates are formed in the propane oxidation over silica **catalysts**
supporting a very small amount of Fe. Alkali addition to the **catalysts**
can enhance the activity as well as the selectivity to acrolein and
acetone.
CC 22-7 (Physical Organic Chemistry)
Section cross-reference(s): 67
ST oxygenate formation propane oxidn; potassium modified iron silica
catalyst autoxidn; propane oxidn potassium iron silica
catalyst
IT Autooxidation
Autooxidation **catalysts**
Oxidation
Oxidation **catalysts**
Surface area
(formation of oxygenates in propane oxidation over K+ modified Fe/SiO2
catalyst)
IT 1309-37-1, Iron oxide, uses 7439-89-6, Iron, uses 7439-96-5,
Manganese, uses 7439-98-7, Molybdenum, uses 7440-09-7, Potassium, uses
7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper,
uses 7440-55-3, Gallium, uses 7440-62-2, Vanadium, uses 7440-74-6,
Indium, uses 24203-36-9, Potassium cation, uses
RL: CAT (Catalyst use); USES (Uses)
(formation of oxygenates in propane oxidation over K+ modified Fe/SiO2
catalyst)
IT 7631-86-9, Silica, properties
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)
(formation of oxygenates in propane oxidation over K+ modified Fe/SiO2
catalyst)
IT 74-98-6, Propane, reactions 115-07-1, Propene, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC
(Process); RACT (Reactant or reagent)
(formation of oxygenates in propane oxidation over K+ modified
Fe/SiO2 **catalyst**)
IT 50-00-0P, Formaldehyde, preparation 67-64-1P, Acetone,
preparation 75-07-0P, Acetaldehyde, preparation 78-94-4P,
3-Buten-2-one, preparation 107-02-8P, Acrolein, preparation
1191-99-7P, 2,3-Dihydrofuran
RL: SPN (Synthetic preparation); PREP (Preparation)
(formation of oxygenates in propane oxidation over K+ modified Fe/SiO2
catalyst)
IT 115-07-1, Propene, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC

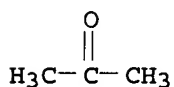
(Process); **RACT** (Reactant or reagent)
 (formation of **oxygenates** in propane oxidation over K+ modified
 Fe/SiO₂ **catalyst**)

RN 115-07-1 HCAPLUS
 CN 1-Propene (9CI) (CA INDEX NAME)

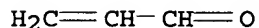


IT 67-64-1P, Acetone, preparation 107-02-8P, Acrolein,
 preparation
 RL: SPN (Synthetic preparation); **PREP** (Preparation)
 (formation of **oxygenates** in propane oxidation over K+ modified Fe/SiO₂
catalyst)

RN 67-64-1 HCAPLUS
 CN 2-Propanone (CA INDEX NAME)



RN 107-02-8 HCAPLUS
 CN 2-Propenal (9CI) (CA INDEX NAME)



RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 29 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 1998:1467 HCAPLUS
 DN 128:49817
 TI Removing molybdenum epoxidation **catalyst** from process stream
 IN Albal, Rajendra; Evans, Thomas; Wentzheimer, Wayne; Donn, Allen; Gelb,
 Morris
 PA Arco Chemical Technology, L.P., USA; Arco Chemie Technologie Nederland
 B.V.
 SO PCT Int. Appl., 16 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9746545	A1	19971211	WO 1997-EP2844	19970601
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,				
DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ,				
LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL,				
PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, YU				
RW: GH, KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB,				
GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN,				
ML, MR, NE, SN, TD, TG				
US 5731446	A	19980324	US 1996-658677	19960604
CA 2256447	A1	19971211	CA 1997-2256447	19970601
CA 2256447	C	20060815		

AU 9730316	A	19980105	AU 1997-30316	19970601
EP 918763	A1	19990602	EP 1997-925033	19970601
EP 918763	B1	20021016		
R: BE, DE, ES, FR, GB, IT, NL				
CN 1221411	A	19990630	CN 1997-195232	19970601
CN 1097585	B	20030101		
BR 9709426	A	19990810	BR 1997-9426	19970601
JP 2001501589	T	20010206	JP 1998-500212	19970601
ES 2185940	T3	20030501	ES 1997-925033	19970601
KR 2000016464	A	20000325	KR 1998-710048	19981204
PRAI US 1996-658677	A	19960604		
WO 1997-EP2844	W	19970601		

AB An aqueous epoxidn. process stream, such as a blowdown process stream from a propylene oxide-styrene co-production process, containing molybdenum, sodium, and orgs. is incinerated to remove organic residues and to obtain an aqueous solution containing molybdenum and sodium, cooled, acidified, and contacted with activated carbon to obtain an aqueous stream containing reduced amount of molybdenum; further molybdenum reduction can be achieved by treatment with basic ion exchange resin.

IC ICM C07D301-32

ICS B01J031-40

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 25, 27

ST molybdenum removal epoxidn process stream; propylene epoxidn molybdenum catalyst removal

IT Ion exchangers

(basic; removing molybdenum epoxidn. catalyst from process stream)

IT Epoxidation

Epoxidation catalysts

(removing molybdenum epoxidn. catalyst from process stream)

IT 7631-95-0, Sodium molybdate

RL: CAT (Catalyst use); USES (Uses)

(removing molybdenum epoxidn. catalyst from process stream)

IT 75-56-9P, Propylene oxide, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)

(removing molybdenum epoxidn. catalyst from process stream)

IT 7440-44-0, Calgon F 400, uses 7647-01-0, Hydrogen chloride, uses

7664-93-9, Sulfuric acid, uses

RL: NUU (Other use, unclassified); USES (Uses)

(removing molybdenum epoxidn. catalyst from process stream)

IT 7439-98-7P, Molybdenum, preparation

RL: PUR (Purification or recovery); PREP (Preparation)

(removing molybdenum epoxidn. catalyst from process stream)

IT 115-07-1, Propylene, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(removing molybdenum epoxidn. catalyst from process stream)

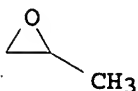
IT 75-56-9P, Propylene oxide, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)

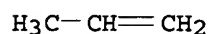
(removing molybdenum epoxidn. catalyst from process stream)

RN 75-56-9 HCAPLUS

CN Oxirane, 2-methyl- (CA INDEX NAME)



IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(removing molybdenum epoxidn. catalyst from process stream)
RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 30 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1997:262287 HCAPLUS

DN 126:240289

TI Method and apparatus for direct injection of oxygen and a gaseous reactant stream into a fluidized-bed reactor

IN Wagner, Matthew Lincoln; Bergman, Thomas John, Jr.

PA Praxair Technology, Inc., USA

SO Eur. Pat. Appl., 8 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 761299	A2	19970312	EP 1996-113566	19960823
	EP 761299	A3	19970611		
	R: DE, ES, FR, IT				
	US 5801265	A	19980901	US 1995-519011	19950824
	CA 2184020	A1	19970225	CA 1996-2184020	19960823
	CA 2184020	C	20020115		
	CN 1150135	A	19970521	CN 1996-119942	19960823
	CN 1059358	B	20001213		
	BR 9603543	A	19980512	BR 1996-3543	19960823
	US 6156921	A	20001205	US 1998-37980	19980309
PRAI	US 1995-519011	A	19950824		

AB The apparatus comprises a sparger causes an entraining of the oxygen-bearing gas into the reactant gas stream, a feed line couples the sparger to the fluidized-bed for entraining the oxygen-bearing gas directly into contact with the fluidized bed, a controller controls both the amount of oxygen-bearing gas and the gaseous reactant and maintains the oxygen level for the the fluidized-bed catalyst. The reactant content of the combined feed and oxygen stream is maintained above an upper flammability limit, preferably >25% over the margin. The system enables the production of acrylonitriles from a feed stream comprising ammonia, propylene and oxygen.

IC ICM B01J008-24

ICS B01J019-00; C07C253-26; B01F005-04

CC 48-4 (Unit Operations and Processes)

ST oxygen gas stream injection app; fluidized bed reactor stream injection app; acrylonitrile manuf fluidized bed reactor

IT Reactors

(fluidized-bed; method and apparatus for direct injection of oxygen and a gaseous reactant stream into a fluidized bed reactor)

IT Fluidized beds

(reactors; method and apparatus for direct injection of oxygen and a gaseous reactant stream into a fluidized bed reactor)

IT 107-13-1P, Acrylonitrile, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)

(method and apparatus for direct injection of oxygen and a gaseous reactant stream into a fluidized bed reactor)

IT 115-07-1, Propylene, reactions 7664-41-7, Ammonia, reactions 7782-44-7, Oxygen, reactions

RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)

(method and apparatus for direct injection of oxygen and a gaseous reactant stream into a fluidized bed reactor)

IT 107-13-1P, Acrylonitrile, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)

(method and apparatus for direct injection of oxygen and a gaseous reactant stream into a fluidized bed reactor)

RN 107-13-1 HCAPLUS

CN 2-Propenenitrile (9CI) (CA INDEX NAME)



IT 115-07-1, Propylene, reactions

RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)

(method and apparatus for direct injection of oxygen and a gaseous reactant stream into a fluidized bed reactor)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 31 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1997:124919 HCAPLUS

DN 126:212527

TI Process for producing propylene oxide from a feedstream comprising hydrogen and a carbon oxide

IN Vora, Bipin V.; Pujado, Peter R.

PA UOP Inc., USA

SO U.S., 11 pp.

CODEN: USXXAM

DT Patent

LA English

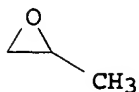
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	US 5599955	A	19970204	US 1996-605602	19960222
PRAI	US 1996-605602		19960222		

AB In the process, propylene oxide is produced from an alternate feedstream comprising hydrogen and a carbon oxide. A portion of the feedstream is passed to an oxygenate production zone to produce an oxygenate stream comprising methanol and di-Me ether, and the oxygenate stream is passed to an olefin production zone containing a metal aluminophosphate catalyst to produce a propylene stream. The propylene stream is epoxidized with hydrogen peroxide which has been produced from hydrogen separated from a portion of the feedstream. The spent water stream produced by the epoxidn. reaction is treated to remove heavy components and returned to the hydrogen peroxide production zone. The return of the unreacted propylene from the epoxidn. reaction zone for its subsequent recovery and recycle

permits a less complicated, lower energy propylene separation. The recycling of spent water from the epoxidn. reaction zone and the removal of heavy compds. eliminates a low value water stream and the recovery of heavy hydrocarbons therefrom produces a valuable secondary product.

- IC ICM C07D301-14
ICS C07D301-16
INCL 549525000
CC 35-2 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 27
ST propylene oxide prepn hydrogen carbon monooxide; epoxidn propylene hydrogen carbon oxide
IT Silicoaluminophosphate zeolites
RL: CAT (Catalyst use); USES (Uses)
(SAPO-17, SAPO-34, SAPO-18; producing propylene oxide from feedstream comprising hydrogen and carbon oxide)
IT Aluminophosphates
RL: CAT (Catalyst use); USES (Uses)
(metal; producing propylene oxide from feedstream comprising hydrogen and carbon oxide)
IT Epoxidation
(producing propylene oxide from feedstream comprising hydrogen and carbon oxide)
IT Synthesis gas
RL: RCT (Reactant); RACT (Reactant or reagent)
(producing propylene oxide from feedstream comprising hydrogen and carbon oxide)
IT 42613-21-8, Titanium silicate
RL: CAT (Catalyst use); USES (Uses)
(producing propylene oxide from feedstream comprising hydrogen and carbon oxide)
IT 75-56-9P, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(producing propylene oxide from feedstream comprising hydrogen and carbon oxide)
IT 115-07-1P, 1-Propene, preparation 7722-84-1P, Hydrogen peroxide, preparation
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(producing propylene oxide from feedstream comprising hydrogen and carbon oxide)
IT 124-38-9, Carbon dioxide, reactions 630-08-0, Carbon monoxide, reactions 1333-74-0, Hydrogen, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(producing propylene oxide from feedstream comprising hydrogen and carbon oxide)
IT 75-56-9P, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(producing propylene oxide from feedstream comprising hydrogen and carbon oxide)
RN 75-56-9 HCAPLUS
CN Oxirane, 2-methyl- (CA INDEX NAME)



- IT 115-07-1P, 1-Propene, preparation
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);

RACT (Reactant or reagent)(producing **propylene oxide** from **feedstream**
comprising hydrogen and carbon oxide)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 32 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1997:113849 HCAPLUS

DN 126:186513

TI Integrated process for the production of propylene oxide from hydrogen-
and **propylene-rich hydrocarbon stream**

IN Pujado, Peter R.; Hammerman, John I.

PA UOP Inc., USA

SO U.S., 6 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5599956	A	19970204	US 1996-606108	19960222
PRAI	US 1996-606108		19960222		

AB Propylene oxide is produced by an integrated process utilizing as a basic
feedstock a refinery stream containing saturated hydrocarbons. The first
element

of the process converts one or more of the saturated hydrocarbons to a
stream containing **propylene** and hydrogen using steam
cracking, catalytic cracking, or preferably catalytic dehydrogenation.
Hydrogen and propylene are separated, and the hydrogen is employed in a
reaction cycle affording hydrogen peroxide. The latter is then used to
epoxidize propylene in the presence of a suitable **catalyst**, especially
a titanosilicate.

IC ICM C07D301-12

ICS C07D303-04

INCL 549531000

CC 35-2 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 51

ST propylene oxide manuf satd hydrocarbon feedstock; hydrogen peroxide
epoxidn propylene methyloxirane manuf

IT Epoxidation

(integrated process for the production of propylene oxide from hydrogen-
and **propylene-rich hydrocarbon stream**)IT Epoxidation **catalysts**(integrated process for the production of propylene oxide from hydrogen-
and **propylene-rich hydrocarbon stream** in presence
of)

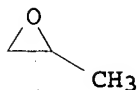
IT Silicates, uses

RL: **CAT (Catalyst use)**; USES (Uses)(titanosilicates, **catalyst**; integrated process for the production
of propylene oxide from hydrogen- and **propylene-rich**
hydrocarbon stream in presence of)

IT 13463-67-7, Titania, uses

RL: **CAT (Catalyst use)**; USES (Uses)(catalytic support; integrated process for the production of propylene
oxide from hydrogen- and **propylene-rich hydrocarbon**

- stream in presence of)
- IT 75-56-9P, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(integrated process for the production of propylene oxide from hydrogen- and propylene-rich hydrocarbon stream)
- IT 115-07-1, 1-Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(integrated process for the production of propylene oxide from hydrogen- and propylene-rich hydrocarbon stream)
- IT 7722-84-1P, Hydrogen peroxide, preparation
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(integrated process for the production of propylene oxide from hydrogen- and propylene-rich hydrocarbon stream employing hydrogen peroxide formed in the process)
- IT 1333-74-0, Hydrogen, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(integrated process for the production of propylene oxide from hydrogen- and propylene-rich hydrocarbon stream in presence of)
- IT 75-56-9P, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(integrated process for the production of propylene oxide from hydrogen- and propylene-rich hydrocarbon stream)
- RN 75-56-9 HCAPLUS
- CN Oxirane, 2-methyl- (CA INDEX NAME)



- IT 115-07-1, 1-Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(integrated process for the production of propylene oxide from hydrogen- and propylene-rich hydrocarbon stream)
- RN 115-07-1 HCAPLUS
- CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 33 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1996:705800 HCAPLUS

DN 125:332259

TI Process for producing diisopropyl ether

IN Marker, Terry L.

PA UOP Inc., USA

SO Can. Pat. Appl., 21 pp.

CODEN: CPXXEB

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	CA 2145050	A1	19960921	CA 1995-2145050	19950320
PRAI	CA 1995-2145050		19950320		

AB A propylene-containing stream is contacted with iso-PrOH in a first stage in the presence of a catalyst under conditions to produce an effluent stream comprising iso-Pr2O, useful as an octane-enhancing additive for gasoline. At least a portion of this effluent stream is recycled to a second stage where the iso-Pr2O reacts with water to produce iso-PrOH. The iso-PrOH is then recycled to the first stage. Producing iso-PrOH by the hydration of iso-Pr2O is an easier reaction than, for example, hydration of propylene.

IC ICM C07C043-04
ICS C07C041-06

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 51

ST isopropyl ether manuf hydrolysis

IT Gasoline additives
(antiknock, process for producing diisopropyl ether)

IT 67-63-0P, 2-Propanol, preparation
RL: BYP (Byproduct); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(process for producing diisopropyl ether)

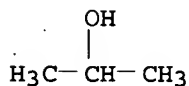
IT 108-20-3P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(process for producing diisopropyl ether)

IT 115-07-1, 1-Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for producing diisopropyl ether)

IT 67-63-0P, 2-Propanol, preparation
RL: BYP (Byproduct); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(process for producing diisopropyl ether)

RN 67-63-0 HCAPLUS

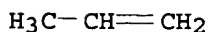
CN 2-Propanol (9CI) (CA INDEX NAME)



IT 115-07-1, 1-Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for producing diisopropyl ether)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 34 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1996:672968 HCAPLUS

DN 125:328095

TI Multistage indirect propylene hydration process and catalyst for the production of diisopropyl ether and isopropanol

IN Bell, Weldon K.; Brown, Stephen H.; Trewella, Jeffrey C.

PA Mobil Oil Corp., USA

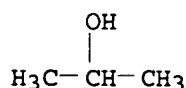
SO U.S., 12 pp., Cont.-in-part of U.S. Ser. No. 347,933, abandoned.
CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5569789	A	19961029	US 1995-510371	19950802
PRAI	US 1994-347933	B2	19941201		
AB	A multistaged fixed catalyst bed process for the production of diisopropyl ether and isopropanol is disclosed comprising a fixed bed of serially connected stages containing zeolite Beta catalyst . A feedstream of propylene and a water equivalent (selected from the group of water, isopropanol and diisopropyl ether) is introduced into each stage at a rate sufficient to provide a mole ratio of water equivalent to propylene equivalent that increases in increments by stage from ≥ 0.1 in a first stage to ≤ 1.2 in a final stage and the feedstream is introduced at 50-450°/700-24,000 kPa, and a weight-hourly space velocity of 0.10-30, based on catalyst , whereby a single non-aqueous liquid phase is maintained in the fixed bed. An effluent product stream is recovered comprising diisopropyl ether, isopropanol, and water from the final stage. Isopropanol is recycled to the first stage when the preferred product is diisopropyl ether. When the preferred product is isopropanol, diisopropyl ether and water are recycled to the first stage.				
IC	ICM C07C029-00 ICS C07C031-10; C07C041-06; C07C043-04				
INCL	568697000				
CC	23-9 (Aliphatic Compounds) Section cross-reference(s): 45, 48, 67				
ST	isopropyl ether prepn; isopropanol prepn propylene hydration; zeolite catalyst prepn isopropyl ether				
IT	Etherification (of propylene in prepn of diisopropyl ether)				
IT	Etherification catalysts (zeolite- β for conversion of propylene in prepn of diisopropyl ether)				
IT	Zeolites, uses RL: CAT (Catalyst use) ; USES (Uses) (beta, catalyst for the production of diisopropyl ether and isopropanol from propylene and water)				
IT	67-63-0P, 2-Propanol, preparation 108-20-3P, Diisopropyl ether RL: IMF (Industrial manufacture) ; PREP (Preparation) (multistage indirect propylene hydration process and catalyst for the production of diisopropyl ether and isopropanol)				
IT	115-07-1, Propylene, reactions 7732-18-5, Water, reactions RL: RCT (Reactant) ; RACT (Reactant or reagent) (multistage indirect propylene hydration process and catalyst for the production of diisopropyl ether and isopropanol)				
IT	67-63-0P, 2-Propanol, preparation RL: IMF (Industrial manufacture) ; PREP (Preparation) (multistage indirect propylene hydration process and catalyst for the production of diisopropyl ether and isopropanol)				
RN	67-63-0 HCAPLUS				
CN	2-Propanol (9CI) (CA INDEX NAME)				



IT 115-07-1, Propylene, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
 (multistage indirect propylene hydration process and catalyst
 for the production of diisopropyl ether and isopropanol)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 35 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1996:365869 HCAPLUS

DN 125:15023

TI Process for manufacturing ethylbenzene or cumene

IN Hendriksen, Dan Eldon; Lattner, James Richardson; Zboray, James Andrew;
 Soled, Stuart Leon

PA Exxon Chemical Patents Inc., USA

SO PCT Int. Appl., 24 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9611175	A1	19960418	WO 1995-US13100	19951006
	W: AU, CA, JP, SG				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2201783	A1	19960418	CA 1995-2201783	19951006
	AU 9538307	A	19960502	AU 1995-38307	19951006
	AU 716613	B2	20000302		
	JP 10508300	T	19980818	JP 1995-512705	19951006
	EP 873291	A1	19981028	EP 1995-936310	19951006
	EP 873291	B1	20020116		
	R: BE, DE, ES, FR, GB, IT, NL, SE				
	ES 2171200	T3	20020901	ES 1995-936310	19951006
PRAI	US 1994-319212	A	19941006		
	WO 1995-US13100	W	19951006		

AB The production of ethylbenzene from dilute ethylene and dilute and dilute benzene is

accomplished in s steps. First, the benzene feedstock stream containing benzene is alkylated with the dilute ethylene feedstock stream, containing ethylene, to form ethylbenzene along with polyethylbenzenes (PEB) which includes a mixture of di- and triethylbenzenes that may also contain tetra-, penta-, and hexaethylbenzenes. Second, the product of the first step is distilled to remove the unreacted benzene and other unreacted material. Some of the ethylbenzene is recovered by distillation In a third step, the polyethylbenzenes are transalkylated with excess pure benzene to form product ethylbenzene. The product ethylbenzene may be recovered by distillation

This process utilizing dilute benzene feedstock may also be applied to the manufacture of cumene, rather than ethylbenzene, by using a dilute propylene feedstock stream, rather than a dilute ethylene feedstock stream. Catalysts used for the alkylation and transalkylation step are supported heteropoly acid catalysts, such as phosphotungstic acid on a silica support or Y zeolite catalyst in the acid form.

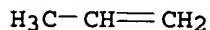
IC ICM C07C015-073

ICS C07C015-085

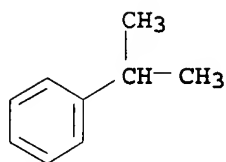
CC 51-11 (Fossil Fuels, Derivatives, and Related Products)

Section cross-reference(s): 45

ST ethylbenzene cumene manuf
IT Heteropoly acids
RL: CAT (Catalyst use); USES (Uses)
(alkylation catalysts; process for manufacturing ethylbenzene or cumene by alkylation-distillation-transalkylation steps)
IT Gasoline
RL: BYP (Byproduct); PREP (Preparation)
(process for manufacturing ethylbenzene or cumene by alkylation-distillation-transalkylation steps with)
IT Zeolites, uses
RL: CAT (Catalyst use); USES (Uses)
(HY, alkylation catalysts; process for manufacturing ethylbenzene or cumene by alkylation-distillation-transalkylation steps)
IT Zeolites, uses
RL: CAT (Catalyst use); USES (Uses)
(Y, LZY 84, alkylation catalysts; process for manufacturing ethylbenzene or cumene by alkylation-distillation-transalkylation steps)
IT 1343-93-7, Phosphotungstic acid
RL: CAT (Catalyst use); USES (Uses)
(alkylation catalysts; process for manufacturing ethylbenzene or cumene by alkylation-distillation-transalkylation steps)
IT 71-43-2, Benzene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkylation; process for manufacturing ethylbenzene or cumene by alkylation-distillation-transalkylation steps)
IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(benzene alkylation with; process for manufacturing cumene by alkylation-distillation-transalkylation steps)
IT 74-85-1, Ethylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(benzene alkylation with; process for manufacturing ethylbenzene by alkylation-distillation-transalkylation steps)
IT 100-41-4P, Ethylbenzene, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(process for manufacturing cumene or)
IT 98-82-8P, Cumene
RL: IMF (Industrial manufacture); PREP (Preparation)
(process for manufacturing ethylbenzene or)
IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(benzene alkylation with; process for manufacturing cumene by alkylation-distillation-transalkylation steps)
RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



IT 98-82-8P, Cumene
RL: IMF (Industrial manufacture); PREP (Preparation)
(process for manufacturing ethylbenzene or)
RN 98-82-8 HCAPLUS
CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L31 ANSWER 36 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1996:346174 HCAPLUS

DN 125:33169

TI Two-step process for producing diisopropyl ether using catalytic distillation

IN Marker, Terry L.; Funk, Gregory A.; Barger, Paul T.; Hammershaimb, Harold U.

PA UOP Inc., USA

SO U.S., 6 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5504258	A	19960402	US 1994-311993	19940926
	US 5744645	A	19980428	US 1996-625859	19960401
PRAI	US 1994-311993	A2	19940926		

OS CASREACT 125:33169

AB A process for the efficient production of diisopropyl ether, where catalytic distillation is used to increase the yield of product beyond thermodyn. equilibrium

limitations, is reported. In a hydration zone, propylene is reacted with water in the presence of a catalyst to effect hydration to produce an effluent stream containing water, unreacted propylene, and iso-Pr alc., and, in an etherification zone, a portion of the effluent is further reacted by catalytic distillation in the presence of a catalyst (e.g., acidic cation exchangers, etc.) to effect etherification of the propylene and iso-Pr alc. to form diisopropyl ether while concurrently separating a propylene-rich portion, a diisopropyl ether-rich portion and an aqueous portion, and recovering the diisopropyl ether from the diisopropyl ether-rich portion. A process flow diagram is presented.

IC ICM C07C041-00

INCL 565695000

CC 23-9 (Aliphatic Compounds)

Section cross-reference(s): 45, 48

ST isopropyl ether prepn; propylene hydration etherification isopropyl ether prepn; isopropanol etherification propylene isopropyl ether prepn

IT Cation exchangers

(catalysts for preparation of diisopropyl ether from propylene and isopropanol)

IT Zeolites, uses

RL: CAT (Catalyst use); USES (Uses)

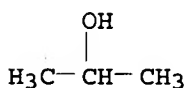
(catalysts for preparation of diisopropyl ether from propylene and isopropanol)

IT 67-63-0P, Isopropyl alcohol, preparation

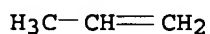
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(two-step process for producing diisopropyl ether using catalytic

distillation)
 IT 108-20-3P, Diisopropyl ether
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
 (two-step process for producing diisopropyl ether using catalytic distillation)
 IT 111-96-6, Diethylene glycol dimethyl ether 126-33-0, Sulfolane
 RL: NUU (Other use, unclassified); USES (Uses)
 (two-step process for producing diisopropyl ether using catalytic distillation)
 IT 115-07-1, Propylene, reactions 7732-18-5, Water, reactions
 RL: RCT (Reactant); **RACT (Reactant or reagent)**
 (two-step process for producing diisopropyl ether using catalytic distillation)
 IT 67-63-0P, Isopropyl alcohol, preparation
 RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
 (two-step process for producing diisopropyl ether using catalytic distillation)
 RN 67-63-0 HCAPLUS
 CN 2-Propanol (9CI) (CA INDEX NAME)



IT 115-07-1, Propylene, reactions
 RL: RCT (Reactant); **RACT (Reactant or reagent)**
 (two-step process for producing diisopropyl ether using catalytic distillation)
 RN 115-07-1 HCAPLUS
 CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 37 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 1996:228959 HCAPLUS
 DN 124:320117
 TI Gas-phase process for manufacture of isopropanol by hydration of propylene
 IN Brown, Stephen H.; Trewella, Jeffrey C.
 PA Mobil Oil Corp., USA
 SO U.S., 6 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5488186	A	19960130	US 1995-408244	19950322
PRAI	US 1995-408244		19950322		
AB	The title process with with high selectivity, high catalyst productivity and long catalyst life comprises contacting water and a feedstream comprising propylene in the gas phase with acidic medium-pore, shape-selective metallosilicate catalyst particles s at a water:propylene mole ratio of 0.05-0.499, where the				

isopropanol is produced at a selectivity of at least 70% and catalyst productivity is at least 0.1 unit weight of oxygenates comprising isopropanol/unit weight of catalyst per h. Zeolite ZSM-5, ZSM-23, ZSM-35 and ferrierite are preferred catalysts.

IC ICM C07C029-04

ICS C07C031-10

INCL 568897000

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

ST zeolite catalyst isopropanol manuf; propylene hydration

isopropanol manuf; silicate catalyst isopropanol manuf

IT Hydration catalysts

(acidic medium pore, shape selective metallocates; gas-phase process for manufacture of isopropanol by hydration of propylene)

IT Silicates, uses

Zeolites, uses

RL: CAT (Catalyst use); USES (Uses)

(gas-phase process for manufacture of isopropanol by hydration of propylene)

IT Zeolites, uses

RL: CAT (Catalyst use); USES (Uses)

(ZSM 11, gas-phase process for manufacture of isopropanol by hydration of propylene)

IT Zeolites, uses

RL: CAT (Catalyst use); USES (Uses)

(ZSM 12, gas-phase process for manufacture of isopropanol by hydration of propylene)

IT Zeolites, uses

RL: CAT (Catalyst use); USES (Uses)

(ZSM 22, gas-phase process for manufacture of isopropanol by hydration of propylene)

IT Zeolites, uses

RL: CAT (Catalyst use); USES (Uses)

(ZSM 23, gas-phase process for manufacture of isopropanol by hydration of propylene)

IT Zeolites, uses

RL: CAT (Catalyst use); USES (Uses)

(ZSM 35, gas-phase process for manufacture of isopropanol by hydration of propylene)

IT Zeolites, uses

RL: CAT (Catalyst use); USES (Uses)

(ZSM 5, gas-phase process for manufacture of isopropanol by hydration of propylene)

IT Zeolites, uses

RL: CAT (Catalyst use); USES (Uses)

(ferrierite-type, gas-phase process for manufacture of isopropanol by hydration of propylene)

IT 67-63-0P, Isopropanol, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)

(gas-phase process for manufacture of isopropanol by hydration of propylene)

IT 115-07-1, Propylene, reactions 7732-18-5, Water, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(gas-phase process for manufacture of isopropanol by hydration of propylene)

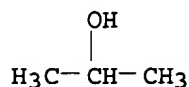
IT 67-63-0P, Isopropanol, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)

(gas-phase process for manufacture of isopropanol by hydration of propylene)

RN 67-63-0 HCAPLUS

CN 2-Propanol (9CI) (CA INDEX NAME)



IT 115-07-1, Propylene, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (gas-phase process for manufacture of isopropanol by hydration of propylene)
 RN 115-07-1 HCAPLUS
 CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 38 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 1995:964998 HCAPLUS
 DN 124:59867
 TI Process for the production of oxo products
 IN Ramachandran, Ramakrishnan; Dao, Loc H.
 PA The BOC Group, Inc., USA
 SO U.S., 10 pp. Cont.-in-part of U.S. Ser. No. 129,527, abandoned
 CODEN: USXXAM

DT Patent
 LA English

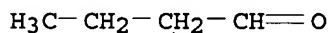
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5463137	A	19951031	US 1994-231546	19940422
	CA 2130387	A1	19950331	CA 1994-2130387	19940818
	ZA 9406374	A	19950606	ZA 1994-6374	19940822
	NO 9403370	A	19950331	NO 1994-3370	19940912
	EP 648730	A1	19950419	EP 1994-307011	19940926
	EP 648730	B1	20001206		
	R: BE, DE, ES, FR, GB, IE, IT, NL, SE				
	IN 185839	A1	20010505	IN 1994-MA942	19940927
	FI 9404507	A	19950331	FI 1994-4507	19940929
	HU 71053	A2	19951128	HU 1994-2791	19940929
	JP 07196571	A	19950801	JP 1994-237088	19940930
	CN 1106786	A	19950816	CN 1994-116997	19940930
	CN 1073075	B	20011017		
	CZ 283957	B6	19980715	CZ 1994-2407	19940930
	CZ 283982	B6	19980715	CZ 1997-1333	19940930
PRAI	US 1993-129527	B2	19930930		
	US 1994-231546	A	19940422		

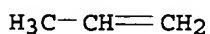
AB A propylene stream which contains propane as an impurity is contacted with carbon monoxide and hydrogen in the presence of a hydroformylation catalyst thereby producing a product stream containing butyraldehyde and/or Bu alc., unreacted propylene and propane. A gas mixture containing propylene and propane is separated from the product stream and subjected to adsorption at 0-250° in a bed of adsorbent which selectively adsorbs propylene. The propylene is desorbed from the adsorbent and recycled to the reaction zone. The process is operated on a low per pass conversion with recycle of unreacted propylene. The propylene adsorption unit may be upstream or downstream of the hydroformylation reactor.

IC ICM C07C045-50

ICS C07C051-14; C07C029-14
INCL 568454000
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
ST propylene oxo reaction process
IT Adsorption
(propylene recycle by; hydroformylation of propylene stream for production of oxo products)
IT 71-36-3P, Butyl alcohol, preparation 123-72-8P, Butyraldehyde
RL: IMF (Industrial manufacture); PREP (Preparation)
(hydroformylation of propylene stream for production of oxo products)
IT 115-07-1, Propylene, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(hydroformylation of propylene stream for production of oxo products)
IT 123-72-8P, Butyraldehyde
RL: IMF (Industrial manufacture); PREP (Preparation)
(hydroformylation of propylene stream for production of oxo products)
RN 123-72-8 HCAPLUS
CN Butanal (9CI) (CA INDEX NAME)



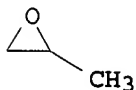
IT 115-07-1, Propylene, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(hydroformylation of propylene stream for production of oxo products)
RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



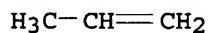
L31 ANSWER 39 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:781794 HCAPLUS
DN 123:170531
TI Controlled epoxidation of propylene with tert-Bu hydroperoxide
IN Wu, Chung Nan T.; Taylor, Mark E.; Mueller, Mark A.
PA Texaco Chemical Co., USA
SO U.S., 10 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	US 5410077	A	19950425	US 1993-148226	19931108
	CA 2129711	A1	19950509	CA 1994-2129711	19940808
	EP 657445	A1	19950614	EP 1994-308160	19941104
	EP 657445	B1	19990303		
	R: DE, FR, GB				
	JP 07188200	A	19950725	JP 1994-273472	19941108
PRAI	US 1993-148226	A	19931108		

- AB In a regulated process wherein propylene is reacted with tert-Bu hydroperoxide in solution in tert-Bu alc. to produce propylene oxide and tert-Bu alc. in a reactor system comprising a first isothermal segment comprising a plurality of at least four sequentially interconnected internally cooled reactors, and a second adiabatic segment, an initial feed mixture is continuously charged to the first reactor, comprising **propylene** and a recycle **stream** composed of about 25 to about 75 weight % of the combined weight of said **propylene** and said recycle **stream**, a plurality of feed streams comprising a tert-Bu alc. solution of tert-Bu hydroperoxide and molybdenum **catalyst** are charged to each of at least four sequentially interconnected reactors, and about 60 to 80 wt % of the tert-Bu hydroperoxide is converted in the isothermal segment; the recycle stream being removed at the end of the isothermal segment and the remainder of the intermediate reaction mixture being passed through the adiabatic segment where addnl. tert-Bu hydroperoxide is converted.
- IC ICM C07D301-19
ICS C07D303-04; C07C027-16; C07C031-12
- INCL 549529000
- CC 35-2 (Chemistry of Synthetic High Polymers)
- ST propylene epoxidn control; butyl hydroperoxide propylene epoxidn; oxide propylene prepn epoxidn control; alc butyl prepn epoxidn control
- IT Epoxidation
Process control and dynamics
(controlled epoxidn. of propylene with tert-Bu hydroperoxide)
- IT 7439-98-7, Molybdenum, uses
RL: **CAT (Catalyst use)**; **USES (Uses)**
(controlled epoxidn. of propylene with tert-Bu hydroperoxide)
- IT 75-56-9P, Propylene oxide, preparation 75-65-0P, preparation
RL: **IMF (Industrial manufacture)**; **PREP (Preparation)**
(controlled epoxidn. of propylene with tert-Bu hydroperoxide)
- IT 75-91-2 115-07-1, Propylene, reactions
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**
(controlled epoxidn. of propylene with tert-Bu hydroperoxide)
- IT 75-56-9P, Propylene oxide, preparation
RL: **IMF (Industrial manufacture)**; **PREP (Preparation)**
(controlled epoxidn. of propylene with tert-Bu hydroperoxide)
- RN 75-56-9 HCAPLUS
- CN Oxirane, 2-methyl- (CA INDEX NAME)



- IT 115-07-1, Propylene, reactions
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**
(controlled epoxidn. of propylene with tert-Bu hydroperoxide)
- RN 115-07-1 HCAPLUS
- CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 40 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:559934 HCAPLUS
DN 122:295137

TI Two-stage process for producing diisopropyl ether using hydration
 IN Marker, Terry L.
 PA UOP Inc., USA
 SO U.S., 7 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5399788	A	19950321	US 1993-171573	19931222
	EP 733615	A1	19960925	EP 1995-301893	19950320
	EP 733615	B1	20020619		

R: BE, DE, ES, FR, GB, IT, NL

PRAI US 1993-171573 19931222

AB In process for the production of diisopropyl ether, a propylene-containing stream is contacted with iso-PrOH in a first stage in the presence of a catalyst under conditions to produce an effluent stream comprising diisopropyl ether. At least a portion of this effluent stream is recycled to a second stage where the diisopropyl ether is reacted with water to produce iso-Pr alc. The iso-Pr alc. is then recycled to the first stage. The benefit of producing iso-Pr alc. by the hydration of diisopropyl ether is that it is an easier reaction than, for example, the hydration of propylene. As a result, the process of the present invention can operate under less severe conditions, i.e., less cost.

IC ICM C07C041-06

INCL 568697000

CC 51-7 (Fossil Fuels, Derivatives, and Related Products)

ST diisopropyl ether two stage prodn

IT Gasoline additives

(antiknock, IPA and DIPE; two-stage process for producing diisopropyl ether using hydration)

IT 67-63-0P, Isopropyl alcohol, preparation

RL: PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(in two-stage process for producing diisopropyl ether using hydration)

IT 115-07-1, Propylene, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(in two-stage process for producing diisopropyl ether using hydration)

IT 108-20-3P, Diisopropyl ether

RL: IMF (Industrial manufacture); PREP (Preparation)

(octane enhancers; two-stage process for producing diisopropyl ether using hydration)

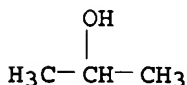
IT 67-63-0P, Isopropyl alcohol, preparation

RL: PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(in two-stage process for producing diisopropyl ether using hydration)

RN 67-63-0 HCAPLUS

CN 2-Propanol (9CI) (CA INDEX NAME)



IT 115-07-1, Propylene, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(in two-stage process for producing diisopropyl ether using hydration)

RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 41 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1990:533047 HCAPLUS

DN 113:133047

TI Process and apparatus for minimizing fluidized bed **catalyst** loss
in an olefin ammoxidation process

IN Braun, John Ferrell; Nowak, Robert Thomas

PA Monsanto Co., USA

SO Eur. Pat. Appl., 8 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 376912	A2	19900704	EP 1989-870216	19891221
	EP 376912	A3	19900919		
	EP 376912	B1	19940914		
	R: DE, ES, FR, GB, IT, NL				
	ES 2017452	T3	19950101	ES 1989-870216	19891221
	CA 2006815	A1	19900629	CA 1989-2006815	19891228
	JP 02231459	A	19900913	JP 1989-345047	19891228
	JP 2968810	B2	19991102		
	BR 8906819	A	19900918	BR 1989-6819	19891228
	US 5079379	A	19920107	US 1990-540381	19900618
PRAI	US 1988-291892	A	19881229		

AB In the manufacture of acrylonitrile from propylene in a fluidized bed catalytic reactor, a gaseous feed **stream** containing **propylene**, ammonia, and O is charged to a fluidized bed of a particulate **catalyst** in a reactor system having a cyclone means downstream of the fluidized bed for separation of entrained particles from the gaseous stream exiting the fluidized bed. The process improvement is that **catalyst** is mixed with a discrete inert particulate material in an amount and having particle sizes and densities selected so that the **catalyst** losses are $\geq 25\%$ lower than in a control system containing no inert material. The inert material is present in an amount of 5-40% (based on the **catalyst** weight) and has a median particle size of 15-55 μm . The ammoxidn. **catalyst** is represented for the formula $\text{SbaUbFecBidMoeMfOg}$ ($\text{M} = \text{Ni}, \text{Co}$; $\text{a} = 1-10$; $\text{b}, \text{c} = 0.1-5$; $\text{d}, \text{e} = 0.001-0.1$; $\text{f} = 0-0.1$; $\text{g} = \text{number which satisfies the metal valencies}$).

IC ICM B01J008-32

ICS B01J023-88; C07C253-26

CC 35-2 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 23, 48, 67

ST acrylonitrile manuf propylene ammoxidn; cyclone **catalyst** sepn
ammoxidn process

IT Ammoxidation **catalysts**

(antimony-bismuth-cobalt or nickel-iron-molybdenum-uranium oxides, for conversion of propylene to acrylonitrile, cyclone separation of, for reduced **catalyst** loss)

IT 7664-41-7, Ammonia, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(ammoxidn. by, of propylene, **catalysts** for)

IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(ammoxidn. of, acrylonitrile from, catalysts for, cyclone
application for prevention of catalyst loss in)

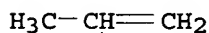
IT 7439-89-6, Iron, uses and miscellaneous 7439-98-7, Molybdenum, uses and
miscellaneous 7440-02-0, Nickel, uses and miscellaneous 7440-36-0,
Antimony, uses and miscellaneous 7440-48-4, Cobalt, uses and
miscellaneous 7440-61-1, Uranium, uses and miscellaneous 7440-69-9,
Bismuth, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for ammoxidn. of propylene to acrylonitrile,
cyclone separation of, for reduction of catalyst loss)

IT 107-13-1P, Acrylonitrile, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(manufacture of, by propylene ammoxidn., catalysts for, cyclone
application for catalysts separation and loss reduction in)

IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(ammoxidn. of, acrylonitrile from, catalysts for, cyclone
application for prevention of catalyst loss in)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



IT 107-13-1P, Acrylonitrile, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(manufacture of, by propylene ammoxidn., catalysts for, cyclone
application for catalysts separation and loss reduction in)

RN 107-13-1 HCAPLUS

CN 2-Propenenitrile (9CI) (CA INDEX NAME)



L31 ANSWER 42 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1989:576743 HCAPLUS

DN 111:176743

TI Preparation of isopropanol by catalytic hydration of propylene

IN Marler, David O.; Sorensen, Charles M.; Varghese, Philip

PA Mobil Oil Corp., USA

SO Eur. Pat. Appl., 8 pp.
CODEN: EPXXDW

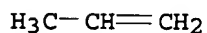
DT Patent

LA English

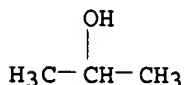
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 323269	A1	19890705	EP 1988-312426	19881230
	EP 323269	B1	19921028		
	R: BE, DE, FR, GB, IT, NL, SE				
	JP 01246234	A	19891002	JP 1988-332689	19881228
	ZA 8809686	A	19900829	ZA 1988-9686	19881228
	AU 8827656	A	19890706	AU 1988-27656	19881230
	AU 611515	B2	19910613		
	CN 1035493	A	19890913	CN 1989-101116	19881230

US 4967020 A 19901030 US 1989-389198 19890803
PRAI US 1987-139565 A 19871230
AB Propylene (I) is converted to iso-ProH by contacting a feed containing I with H₂O at H₂O:I mole ratio 0.1-1 in the vapor and/or liquid phase in the presence of zeolite ZSM-35 catalyst. Thus, I was reacted with H₂O in 1:2 mol ratio in the presence of alumina-bound ZSM-35 catalyst at 166° and 70 bars resulting in 55.1% I conversion and 99.5% alc. selectivity, compared with 8.7 and 98.7, resp. using alumina-bound ferrierite at the same molar ratio of a reactants instead of ZSM-35.
IC ICM C07C029-04
ICS C07C031-10
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 67
ST hydration propylene zeolite catalyst; isopropanol manuf
propylene catalytic hydration
IT Hydration catalysts
(modified zeolite ZSM-35, for propylene)
IT Zeolites, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(ZSM 35, catalysts, for hydration of propylene, to isopropanol)
IT 1344-28-1, Alumina, uses and miscellaneous 7631-86-9, Silica, uses and miscellaneous
RL: USES (Uses)
(binders, ZSM-35 zeolite containing, catalysts, for hydration of propylene)
IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydration of, catalytic, isopropanol manufacture by)
IT 67-63-0P, Isopropanol, preparation
RL: PREP (Preparation)
(manufacture of, by catalytic hydration of propylene, streamlined method for)
IT 1335-30-4
RL: USES (Uses)
(zeolites, ZSM 35, catalysts, for hydration of propylene, to isopropanol)
IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydration of, catalytic, isopropanol manufacture by)
RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



IT 67-63-0P, Isopropanol, preparation
RL: PREP (Preparation)
(manufacture of, by catalytic hydration of propylene, streamlined method for)
RN 67-63-0 HCAPLUS
CN 2-Propanol (9CI) (CA INDEX NAME)



L31 ANSWER 43 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1986:562141 HCAPLUS

DN 105:162141

TI Selective oxidation of olefins with photochemical illumination of semiconductor powder suspensions

IN Ward, Michael D.; Brazdil, James F., Jr.; Grasselli, Robert K.

PA Standard Oil Co., USA

SO U.S., 6 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4571290	A	19860218	US 1984-643149	19840822
PRAI	US 1984-643149		19840822		

OS MARPAT 105:162141

AB Selective oxidation of olefins is carried out by the steps of forming a suspension of a semiconductor powder in a solvent, adding an olefin and an oxidant to the suspension, and photochem. activating the suspension with illumination having an energy at least equal to the band gap of the semiconductor powder. The semiconductor powder has the general formula $A_xB_yC_z$ where A is selected from Bi, Sn, Pt, Pd, Cu, Fe, W, V, Sb, Mo, Ru or Ag and mixts. thereof; B is selected from Te, Sb, Ti, Cd, Mo, V or W and mixts. thereof; C is O or S; x equals 0-5; y equals 1-3; and z is a number to satisfy the other elements and is optionally metalized by an element selected from Pt, Pd, Cu, or Ag. The selectivity of the oxidation is controlled by nature of the semiconductor powder, the solvent, and the oxidant. Thus, a TiO_2 semiconductor powder 100 mg was suspended in H_2O 10 mL, purged with O, propylene introduced to the O stream at a propylene-O ratio of 1:4 at a flow rate of 1.2 mL/min, and illuminated with a 500-W Hg lamp for 3 h to give a product mixture of acetaldehyde 78.5, propylene oxide 18.2, and allyl alc. 3.3 mol.%.

IC ICM B01J019-12

INCL 204157690

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST photochem oxidn olefin semiconductor powder

IT Oxidation, photochemical

(of olefins in aqueous suspensions of semiconductor powders)

IT Alkenes, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(photochem. oxidation of, in aqueous suspensions of semiconductor powders)

IT Oxidation catalysts

(photochem., semiconductors, for olefins)

IT 286-20-4P 930-68-7P

RL: FORM (Formation, nonpreparative); PREP (Preparation)

(formation of, in photooxidn. of cyclohexane in aqueous suspension of titanium dioxide powder)

IT 75-07-0P, preparation 75-56-9P, preparation 107-18-6P, preparation

RL: FORM (Formation, nonpreparative); PREP (Preparation)

(formation of, in photooxidn. of propylene in aqueous suspension of titanium dioxide powder)

IT 107-02-8P, preparation 123-38-6P, preparation

RL: FORM (Formation, nonpreparative); PREP (Preparation)

(formation of, in photooxidn. of propylene in aqueous suspension of titanium powder in presence of copper(2+) ion)

IT 12408-02-5, uses and miscellaneous 20074-52-6, uses and miscellaneous
22537-31-1, uses and miscellaneous 22537-50-4, uses and miscellaneous
RL: USES (Uses)
(oxidant, in photooxidn. of olefins in aqueous dispersions of semiconductor powders)

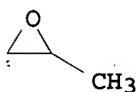
IT 1313-27-5, uses and miscellaneous 7440-06-4, uses and miscellaneous
13463-67-7, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(photooxidn. catalyst, for propylene and cyclohexane)

IT 15158-11-9, uses and miscellaneous
RL: USES (Uses)
(photooxidn. of propylene and cyclohexane in aqueous suspension of titanium dioxide powder in presence of)

IT 110-82-7, reactions 115-07-1, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(photooxidn. of, in aqueous suspension of titanium dioxide powder)

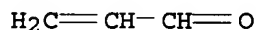
IT 75-56-9P, preparation
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in photooxidn. of propylene in aqueous suspension of titanium dioxide powder)

RN 75-56-9 HCAPLUS
CN Oxirane, 2-methyl- (CA INDEX NAME)



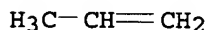
IT 107-02-8P, preparation
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in photooxidn. of propylene in aqueous suspension of titanium powder in presence of copper(2+) ion)

RN 107-02-8 HCAPLUS
CN 2-Propenal (9CI) (CA INDEX NAME)



IT 115-07-1, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(photooxidn. of, in aqueous suspension of titanium dioxide powder)

RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 44 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1983:470356 HCAPLUS
DN 99:70356
TI Selective alkylation of aromatic hydrocarbons using a mixed ethylene/propylene alkylation agent
IN Barile, George C.
PA Mobil Oil Corp. , USA
SO U.S., 7 pp.
CODEN: USXXAM

DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4387259	A	19830607	US 1981-283863	19810716
PRAI	US 1981-283863		19810716		
AB	<p>ZSM-12 zeolite was used as a catalyst for selectively alkylating C₆H₆ with ethylene-propylene mixed feed to give an alkylated product rich in propylated benzenes and an olefin product enriched in ethylene and free of reactive propylene. Thus, C₆H₆ was alkylated with an ethylene stream (CH₄ 44.4, C₂H₆ 20.7, ethylene 18.3, N 16.5, and CO₂ 0.11 mol%) and a propylene stream (1:1 weight ratio of C₃H₈ and propylene) (C₆H₆/ethylene/propylene molar feed ratio 6.6/0.75/1.00) with HZSM-12 zeolite catalyst at 210° and atmospheric pressure. Propylene conversion was 100% and ethylene conversion was very low. Propylene conversion to propylated benzenes was 98%, selectivity (cumene/cumene + diisopropylbenzene) was 90%, and selectivity (cumene/cumene + PhEt) was 99%.</p>				
IC	C07C003-52				
INCL	585467000				
CC	25-2 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)				
ST	alkylation arom hydrocarbon zeolite; benzene alkylation ethylene propylene; cumene; isopropylbenzene; isopropylation benzene propylene ethylene				
IT	Aromatic hydrocarbons, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (alkylation of, selective, with propylene-ethylene mixed feed, zeolite catalysts for)				
IT	Isopropylation (of benzene with propylene-ethylene mixed feed)				
IT	Alkylation (selective, of aromatic hydrocarbons with propylene-ethylene mixed feed)				
IT	Isopropylation catalysts (zeolites, for benzene with propylene-ethylene mixed feed)				
IT	Alkylation catalysts (zeolites, selective, for aromatic hydrocarbon propylene-ethylene mixed feed)				
IT	Zeolites, uses and miscellaneous RL: CAT (Catalyst use); USES (Uses) (ZSM 12, catalysts , for selective alkylation of benzene with ethylene-propylene mixed feed)				
IT	115-07-1, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (alkylation by mixed feed containing ethylene and, of benzene, zeolite catalysts for)				
IT	74-85-1, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (alkylation by mixed feed containing propylene and, of benzene, zeolite catalysts for)				
IT	71-43-2, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (alkylation of, selective, with ethylene-propylene mixed feed, zeolite catalysts for)				
IT	98-82-8P 100-18-5P 25321-09-9P RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of, by alkylation of benzene with propylene-ethylene mixed feed, zeolite catalysts for)				
IT	115-07-1, reactions RL: RCT (Reactant); RACT (Reactant or reagent)				

(alkylation by mixed feed containing ethylene and, of benzene, zeolite catalysts for)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



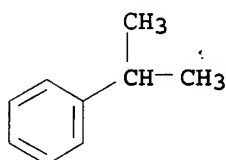
IT 98-82-8P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of, by alkylation of benzene with propylene-ethylene mixed feed, zeolite catalysts for)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L31 ANSWER 45 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1983:4882 HCAPLUS

DN 98:4882

TI Soluble molybdenum catalysts for olefin epoxidation

IN Mocella, Michael Thomas

PA Atlantic Richfield Co., USA

SO Eur. Pat. Appl., 20 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN. CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 58473	A1	19820825	EP 1982-300317	19820121
	EP 58473	B1	19850904		
	R: BE, DE, FR, GB, IT, NL				
	CA 1194494	A1	19851001	CA 1982-394333	19820118
	JP 57140653	A	19820831	JP 1982-8226	19820121
	BR 8200300	A	19821123	BR 1982-300	19820121
	US 4661463	A	19870428	US 1984-649571	19840912
PRAI	US 1981-227116	A	19810121		
	US 1982-387319	A1	19820611		

OS MARPAT 98:4882

AB A soluble Mo-containing catalyst for the hydroperoxide epoxidn. of olefins is regenerated and recycled from a spent catalyst solution by thermally precipitating and separating a Mo-containing solid from the solution, then

solubilizing the solid in a liquid OH-containing organic compound by heating to produce an active catalyst solution. Thus, 0.656 parts of a thermally precipitated Mo-containing solid from a spent catalyst stream for the epoxidn. of propylene [115-07-1] was treated with MeOH [67-56-1] 23, a 40% solution of tert-Bu hydroperoxide in tert-BuOH [75-65-0] 5, and propylene glycol [57-55-6] 4 parts at 60° for 30 min. The reaction mixture was filtered and distilled at

110° to give a solution containing 47,500 ppm Mo, 48% propylene glycol, and 42.2% tert-BuOH, suitable for reuse in the epoxidn.

IC C07D301-19; B01J023-92

CC 35-2 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 23, 27

ST regeneration molybdenum **catalyst** epoxidn olefin; solubilization molybdenum **catalyst** regeneration; propylene epoxidn molybdenum **catalyst** regeneration

IT Epoxidation **catalysts**
(molybdenum, for propylene, regeneration of)

IT 7439-98-7, uses and miscellaneous
RL: CAT (**Catalyst use**); USES (**Uses**)
(**catalysts**, for epoxidn. of propylene, solubilization in regeneration of)

IT 115-07-1, reactions
RL: RCT (**Reactant**); RACT (**Reactant or reagent**)
(epoxidn. of, regeneration of molybdenum **catalysts** for)

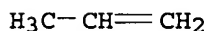
IT 57-55-6, uses and miscellaneous 67-56-1, uses and miscellaneous
75-65-0, uses and miscellaneous
RL: USES (**Uses**)
(in regeneration of molybdenum **catalyst** for propylene epoxidn.)

IT 75-56-9P, preparation
RL: IMF (**Industrial manufacture**); PREP (**Preparation**)
(manufacture of, by epoxidn. of propylene, regeneration of molybdenum **catalyst** in)

IT 115-07-1, reactions
RL: RCT (**Reactant**); RACT (**Reactant or reagent**)
(epoxidn. of, regeneration of molybdenum **catalysts** for)

RN 115-07-1 HCAPLUS

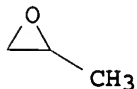
CN 1-Propene (9CI) (CA INDEX NAME)



IT 75-56-9P, preparation
RL: IMF (**Industrial manufacture**); PREP (**Preparation**)
(manufacture of, by epoxidn. of propylene, regeneration of molybdenum **catalyst** in)

RN 75-56-9 HCAPLUS

CN Oxirane, 2-methyl- (CA INDEX NAME)



L31 ANSWER 46 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1977:423939 HCAPLUS

DN 87:23939

TI Acrylonitrile

IN Umemura, Sumio; Odan, Kyoji; Uda, Taizo; Matsuzaki, Tokuo; Hidaka, Mikio; Nakamura, Yasuo; Sawaji, Masao

PA Ube Industries, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 52031025	A	19770309	JP 1975-107084	19750905
	JP 57005787	B	19820201		
	FR 2322855	A1	19770401	FR 1976-26665	19760903
	FR 2322855	B1	19790511		
PRAI	JP 1975-107084	A	19750905		

AB H₂C:CHCN (I) [107-13-1] is prepared by vapor-phase reaction of propylene [115-07-1] with O and NH₃ at high temps. in the presence of **catalysts** comprising MoaCobFecXdOe (X = Ca, W, Cr, Zn, Mn, or Sn; a-e are in such ratio that when a = 12, then b = 4-10, c = 1-6, d = 0-1.0, and e = 40-70) calcined at 500-700°. Thus, an aqueous mixture of (NH₄)₆Mo₇O₂₄·4H₂O 90.0, Co(NO₃)₂·6H₂O 104.9, and Fe(NO₃)₃·9H₂O 41.6 g gave a precipitate, which was aged overnight, dried, 2 weight% graphite added, the mixture

molded, and calcined 5 h at 600° to form a **catalyst** (Mo:Co:Fe = 12:8.4:2.4). A 330 mL/min gaseous mixture of propylene -NH₃-air-stream (10:11:119:25 molar) was passed over 12 mL of the **catalyst** at 390° with a 2.1-s contact period to give 73.1% I with 90.2% propylene conversion and 81.0% selectivity to I.

IC C07C121-32

CC 35-2 (Synthetic High Polymers)

Section cross-reference(s): 23

ST acrylonitrile manuf **catalyst**; propylene ammoxidn **catalyst**IT Ammoxidation **catalysts**

(cobalt-iron-molybdenum-transition metal mixed oxides, for propylene)

IT 115-07-1, reactions

RL: RCT (Reactant); **RACT** (Reactant or reagent)(ammoxidn. of, **catalysts** for)

IT 107-13-1P, preparation

RL: IMF (Industrial manufacture); **PREP** (Preparation)(manufacture of, **catalysts** for)

IT 7439-89-6, uses and miscellaneous 7439-96-5, uses and miscellaneous

7439-98-7, uses and miscellaneous 7440-31-5, uses and miscellaneous

7440-32-6, uses and miscellaneous 7440-33-7, uses and miscellaneous

7440-47-3, uses and miscellaneous 7440-48-4, uses and miscellaneous

7440-66-6, uses and miscellaneous 7440-67-7, uses and miscellaneous

7440-70-2, uses and miscellaneous

RL: **CAT** (Catalyst use); **USES** (Uses)(oxide **catalysts** containing, for ammoxidn of propylene)

IT 115-07-1, reactions

RL: RCT (Reactant); **RACT** (Reactant or reagent)(ammoxidn. of, **catalysts** for)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



IT 107-13-1P, preparation

RL: IMF (Industrial manufacture); **PREP** (Preparation)(manufacture of, **catalysts** for)

RN 107-13-1 HCAPLUS

CN 2-Propenenitrile (9CI) (CA INDEX NAME)



L31 ANSWER 47 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1974:27648 HCAPLUS

DN 80:27648

TI Propylene oxide

IN Kolombos, Alexander J.; McCain, Colin C.

PA BP Chemicals International Ltd.

SO Brit., 5 pp.

CODEN: BRXXAA

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 1327497	A	19730822	GB 1971-29395	19720525
PRAI	GB 1971-29395	A	19720525		

AB Contacting a gaseous stream of propylene [115-07-1] 2.50-4.2, O 12.95-96.82, and He 0-84.32 volume % with a catalyst of silver [7440-22-4] and a Group II metal halide 6.48-28.7 sec at 153-287.deg. increased the selectivity of propylene oxide [75-56-9] formation. The reaction partially converted CH₂:CHMe to the oxide which was trapped. Unreacted CH₂:CHMe was recycled. Thus, contacting CH₂:CHMe 3.12, O 20.96, and He 75.91 volume % 10.4 sec at 256.deg. with Ag containing

6.9 weight % mercuric chloride [7487-94-7] gave propylene oxide with 12.05% selectivity.

IC C07D

CC 35-2 (Synthetic High Polymers)

Section cross-reference(s): 27

ST propylene epoxidn catalyst; silver catalyst epoxidn propylene; calcium halide catalyst epoxidn; mercury chloride catalyst epoxidn; barium chloride catalyst epoxidn; magnesium chloride catalyst epoxidn; oxide propylene

IT Epoxidation catalysts

(silver-Group II metal halide, for propylene)

IT 7487-94-7 7778-54-3 7786-30-3, uses and miscellaneous 7789-75-5, uses and miscellaneous 10043-52-4, uses and miscellaneous 10361-37-2
 RL: USES (Uses)

(catalysts containing silver and, for epoxidn. of propylene)

IT 7440-22-4, uses and miscellaneous

RL: CAT (Catalyst use); USES (Uses)

(catalysts, containing Group II metal halides and, for epoxidn. of propylene)

IT 115-07-1, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
 (epoxidn. of, catalytic)

IT 75-56-9P, preparation

RL: PREP (Preparation)
 (preparation of)

IT 115-07-1, reactions

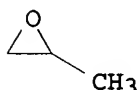
RL: RCT (Reactant); RACT (Reactant or reagent)
 (epoxidn. of, catalytic)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



IT 75-56-9P, preparation
 RL: PREP (Preparation)
 (preparation of)
 RN 75-56-9 HCAPLUS
 CN Oxirane, 2-methyl- (CA INDEX NAME)



L31 ANSWER 48 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1973:71454 HCAPLUS

DN 78:71454

TI Unsaturated carboxylic acids

IN Fujimoto, Kaoru; Kunugi, Taiseiki

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 48000523	B4	19730106	JP 1971-34747	19710524
AB	Unsatd. hydrocarbons of C3-5 were oxidized with O at <200° in the presence of steam using a catalyst (composed of Pd, an element belonging to group I, II, VIII, VIB, or VB) and a carrier. E.g., 5.1 g PdCl2 in dilute HCl was let stand with an activated C to give PdCl2 over C. It was reduced at 300° in H stream and a mixture of propylene , O, and H2O (1:1:5.6 by moles) were introduced at 145° for 15 hr to give 22% acrylic acid.				

INCL 16B631

CC 23-16 (Aliphatic Compounds)

ST unsatn hydrocarbon carboxylic acid

IT Oxidation **catalysts**

(palladium carbon, for oxidation of propylene to acrylic acid)

IT 7647-10-1

RL: CAT (Catalyst use); USES (Uses)

(**catalysts**, containing carbon for oxidation of propylene to acrylic acid)

IT 7440-44-0, uses and miscellaneous

RL: CAT (Catalyst use); USES (Uses)

(**catalysts**, containing palladium chloride for oxidation of propylene to acrylic acid)

IT 79-10-7P, preparation

RL: PREP (Preparation)

(from oxidation of propylene with palladium-carbon **catalysts**)

IT 115-07-1, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidation of, to acrylic acid)

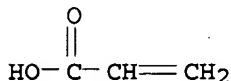
IT 79-10-7P, preparation

RL: PREP (Preparation)

(from oxidation of propylene with palladium-carbon **catalysts**)

RN 79-10-7 HCAPLUS

CN 2-Propenoic acid (9CI) (CA INDEX NAME)



IT 115-07-1, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (oxidation of, to acrylic acid)
 RN 115-07-1 HCAPLUS
 CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 49 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 1971:421490 HCAPLUS
 DN 75:21490
 TI Catalytic production of unsaturated acids and aldehydes
 IN Eden, Jamal S.
 PA Goodrich, B. F., Co.
 SO U.S., 3 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3576857	A	19710427	US 1967-683476	19671116
PRAI	US 1967-683476	A	19671116		

AB An oxidation catalyst comprising a 3:1:2 mixture of MoO₃, TeO₂, and AlPO₄ is used for the oxidation of propylene in air and stream, giving 100 conversion with acrolein and acrylic acid yields of 47 and 28, resp., at 375° and 23 and 30, resp., at 400°.

IC C07C

INCL 260533000

CC 35 (Synthetic High Polymers)

ST propylene oxidn catalyst; molybdenum trioxide oxidn catalyst; tellurium dioxide oxidn catalyst; aluminum phosphate oxidn catalyst; acrolein prepn; acrylic acid prepn

IT Oxidation catalysts
 (aluminum phosphate-oxides, for propene)

IT 79-10-7P, preparation 107-02-8P, preparation
 RL: PREP (Preparation)
 (by oxidation of propene, catalysts for)

IT 1313-27-5, uses and miscellaneous 7446-07-3
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, containing aluminum phosphate, for oxidation of propene)

IT 7784-30-7
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, containing oxides, for oxidation of propene)

IT 115-07-1, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (oxidation of, catalysts for)

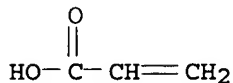
IT 79-10-7P, preparation 107-02-8P, preparation

RL: PREP (Preparation)

(by oxidation of propene, catalysts for)

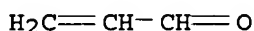
RN 79-10-7 HCAPLUS

CN 2-Propenoic acid (9CI) (CA INDEX NAME)



RN 107-02-8 HCAPLUS

CN 2-Propenal (9CI) (CA INDEX NAME)



IT 115-07-1, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of, catalysts for)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 50 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1970:122191 HCAPLUS

DN 72:122191

TI Oxidation of propylene

IN Rai, Charanjit; Braunwarth, John B.; Kimble, Robert C.

PA Union Oil Co.

SO U.S., 3 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	US 3505359	A	19700407	US 1964-386445	19640730
PRAI	US 1964-386445	A	19640730		

AB A gaseous hydrocarbon mixture containing propylene (I) and O is passed over N d2O3 at elevated temperature and pressure to give a product stream containing propylene oxide (II). Thus, a 1:1 C6H6-I mixture was passed with 0.2 ft3 O/hr over 1 g Nd2O3 at 350°F and 600 psig for 0.5 hr to give 6.28 g II, a 27% yield based on unrecovered I. The catalyst did not degrade during the reaction and was optionally supported on Al2O3, SiO2, or pumice. Byproducts obtained included AcOH, HCO2H, HCO2Me, and C1-3 alcs.

IC C07D

INCL 260348500

CC 35 (Synthetic High Polymers)

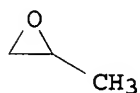
ST oxidn propylene Nd oxide; neodymium oxide propylene oxidn; propylene oxidn catalytic

IT Oxidation catalysts

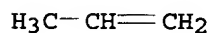
(neodymium oxide, for propene)

IT 75-56-9P, preparation

RL: PREP (Preparation)
(catalysts for)
IT 1313-97-9
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for oxidation of propene)
IT 115-07-1, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of, catalysts for)
IT 75-56-9P, preparation
RL: PREP (Preparation)
(catalysts for)
RN 75-56-9 HCAPLUS
CN Oxirane, 2-methyl- (CA INDEX NAME)



IT 115-07-1, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of, catalysts for)
RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 51 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1969:449346 HCAPLUS
DN 71:49346
TI Acrylonitrile or methacrylonitrile
IN Eden, Jamal S.
PA Goodrich, B. F., Co.
SO U.S., 3 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3445500	A	19690520	US 1967-619173	19670228
	NL 6801761	A	19680829	NL 1968-1761	19680208
	BE 711172	A	19680701	BE 1968-711172	19680223
	FR 1554520	A	19690117	FR 1968-1554520	19680226
	GB 1189752	A	19700429	GB 1968-1189752	19680227
PRAI	US 1967-619173	A	19670228		

AB A catalyst comprising MoO₃ (obtained from NH₄ molybdate) 3, TeO₂ 1, ThP₂O₇ (prepared from Th nitrate and H₃PO₄) 1, and (optionally, as a support) SiO₂ 1 part is used for the preparation (at 390-415°) of acrylonitrile (58-67% yield) from a mixture of propylene (85-99% conversion/pass) 1, O (e.g., air) 1.5-4.0, and NH₃ 0.5-1.75 moles. Steam is also passed into the reactor to reduce the amts. of CO and CO₂ in the effluent gases from the ammoxidn. The catalyst has a long active life. Thus, 450 ml. H₂O containing 158.94 g. dissolved NH₄ molybdate was treated with 100 ml. HCl containing 47.88 g. TeO₂ followed by an aqueous solution

of 165.67 g. Th nitrate and 69.2 g. 85% H₃PO₄. The mixture was dried at 100°, calcined at 400° for 16 hrs., and ground to 10-18 mesh. A glass reactor was filled with 170 cc. of the **catalyst**. Steam at 200-50° was passed into the reactor along with a **stream** of propylene 1, NH₃ 1.07, and O (in air) 3.0 moles. The reactor temperature was 400°, and the contact time was 43.2 sec. The propylene conversion was 85.14%. The yields of acrylonitrile and acrylic acid were 66.78 and 3.76%, resp.

IC C07C; B01J
INCL 260465300
CC 23 (Aliphatic Compounds)
ST acrylonitrile prepn catalysis; methacrylonitrile prepn catalysis; molybdenum trioxide **catalysts**; tellurium dioxide **catalysts**; propylene ammonia reaction; ammonia propylene reaction
IT **Catalysts**
(molybdenum oxide-tellurium oxide-thorium pyrophosphate, for ammonia oxidative reaction with propene)
IT 107-13-1P, preparation
RL: **PREP (Preparation)**
(by ammonia oxidative reaction with propene, **catalysts** for)
IT 1313-27-5, uses and miscellaneous 19183-41-6
RL: **CAT (Catalyst use)**; **USES (Uses)**
(**catalysts**, for ammonia oxidative reaction with propene)
IT 115-07-1, reactions
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**
(oxidative, with ammonia, **catalysts** for)
IT 7664-41-7, reactions
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**
(oxidative, with propene, **catalysts** for)
IT 107-13-1P, preparation
RL: **PREP (Preparation)**
(by ammonia oxidative reaction with propene, **catalysts** for)
RN 107-13-1 HCAPLUS
CN 2-Propenenitrile (9CI) (CA INDEX NAME)



IT 115-07-1, reactions
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**
(oxidative, with ammonia, **catalysts** for)
RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



L31 ANSWER 52 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1968:114029 HCAPLUS
DN 68:114029
TI Development of the technological preparation of a **catalyst** for the oxidative ammonolysis of propylene
AU Kolchin, I. K.; Gribov, A. M.
SO Khimicheskaya Promyshlennost (Moscow, Russian Federation) (1968), 44(2), 81-4
CODEN: KPRMAW; ISSN: 0023-110X
DT Journal

LA Russian
AB A continuous, conversion of a stream of 9-14% propylene, 10-15% NH₃, 10-15% H₂O, 15-20% O, and N to 100 at 460-70°, with a contact time of 4-5 sec. and 80-82% propylene conversion with 65-70% selectivity for acrylonitrile is described. The active catalyst system is a bismuth phosphomolybdate salt which is used partly as a 12-15 weight % layer on 50:50 kaolin-Al₂O₃ (27% total catalyst load) and the rest as a 50:50 copptd. uniform mass with silica gel. 28 references.
CC 23 (Aliphatic Compounds)
ST ACRYLONITRILES VIA PROPYLENE; PROPYLENE ACRYLONITRILES VIA
IT 115-07-1, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(ammonoxidn. of, catalysts for, bismuth molybdophosphate as)
IT 11099-01-7, Molybdophosphoric acid, bismuth salt
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for ammonoxidn. of propene)
IT 107-13-1P, preparation
RL: PREP (Preparation)
(manufacture of, by ammonoxidn. of propene, catalysts for, bismuth molybdophosphate as)
IT 7664-41-7, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidative, with propene, catalysts for, bismuth molybdophosphate as)
IT 115-07-1, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(ammonoxidn. of, catalysts for, bismuth molybdophosphate as)
RN 115-07-1 HCAPLUS
CN 1-Propene (9CI) (CA INDEX NAME)



IT 107-13-1P, preparation
RL: PREP (Preparation)
(manufacture of, by ammonoxidn. of propene, catalysts for, bismuth molybdophosphate as)
RN 107-13-1 HCAPLUS
CN 2-Propenenitrile (9CI) (CA INDEX NAME)



L31 ANSWER 53 OF 53 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1967:65133 HCAPLUS
DN 66:65133
TI Unsaturated aliphatic nitriles
IN Young, Howard Seth; McDaniel, Edgar L.
PA Eastman Kodak Co.
SO U.S., 6 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3293279		19661220	US 1964-375303	19640615

AB cf. CA 44, 653g; U.S. 2,904,580, 580, CA 54, 5470f. A mixture of 667 g. NH₃-stabilized silica soluble (containing 30% silica) and 137 g. ammonium dodecamolybdocerate-8H₂O was stirred and heated. Addition of 73.8 g. Mn(NO₃)₂·6H₂O in 70 ml. H₂O caused gelation. The gel was dispersed with 100 ml. H₂O and 48.1 g. As₂O₅ in 150 ml. H₂O was added. This was evaporated on a steam bath. Calcination was at 200° 2.75 hrs. and 500° 1.5 hrs. A fluidized bed of 150 ml. 40 + 120 mesh of this catalyst [8.2 MnO, 11.9 As₂O₅, 30.0 dodecamolybdoceric acid (I) and 49.9 weight % silica] was tested with a stream of 200 ml. propylene, 200 ml. NH₃, 1500 ml. air, and 200 ml. H₂O vapor/hr. at 472° (1.6 sec. contact time). In 30 min. 42.6% yield acrylonitrile (II), based on C₃H₆, was obtained. The catalyst was regenerated by a 30-min. heating at 430-50° in air. Similarly prepared catalysts containing As₂O₅, I, and silica gave comparable yields of II.

INCL 260465300

CC 23 (Aliphatic Compounds)

ST NITRILES ALIPH UNSATD; ACRYLONITRILES; UNSATD ALIPH NITRILES

IT Catalysts
(arsenic oxide-metal oxide-molybdoceric acid, for ammonia oxidative reaction with propene)

IT Boron oxide
RL: CAT (Catalyst use); USES (Uses)
(catalysts from arsenic oxide, molybdoceric acid and, for propene ammoxidn.)

IT 115-07-1, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(ammoxidn. of, catalysts for, arsenic oxide-metal oxide-molybdoceric acid as)

IT 12050-53-2
RL: CAT (Catalyst use); USES (Uses)
(catalysts from arsenic oxide (As₂O₅), metal oxide and, for propene ammoxidn.)

IT 1308-38-9, uses and miscellaneous 1309-37-1, uses and miscellaneous
1313-13-9, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(catalysts from arsenic oxide, molybdoceric acid and, for propene ammoxidn.)

IT 1303-28-2
RL: CAT (Catalyst use); USES (Uses)
(catalysts from metal oxide, molybdoceric acid (H₈CeMo12O42) and, for propene ammoxidn.)

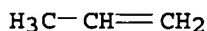
IT 107-13-1P, preparation
RL: PREP (Preparation)
(manufacture of, from propene ammoxidn.)

IT 7664-41-7, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidative, with propene, catalysts for, arsenic oxide (As₂O₅)-metal oxide-molybdoceric acid (H₈CeMo12O42) as)

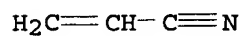
IT 115-07-1, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(ammoxidn. of, catalysts for, arsenic oxide-metal oxide-molybdoceric acid as)

RN 115-07-1 HCAPLUS

CN 1-Propene (9CI) (CA INDEX NAME)



IT 107-13-1P, preparation
RL: PREP (Preparation)
(manufacture of, from propene ammoxidn.)
RN 107-13-1 HCAPLUS
CN 2-Propenenitrile (9CI) (CA INDEX NAME)



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